

Chapter 3. Affected Environment

This chapter provides environmental analyses relative to social, biological, and physical parameters of the project area. Components of this study include a setting discussion, impact analysis criteria, project effects and significance, and applicable mitigation measures. This chapter is organized as follows:

- *Section 3.1, Air Quality*
- *Section 3.2, Cultural Resources*
- *Section 3.3, Social Environment*
- *Section 3.4, Hydrology and Flood Plains*
- *Section 3.5, Hazardous Waste/Material*
- *Section 3.6, Traffic*
- *Section 3.7, Parking*
- *Section 3.8, Land Use and Planning*
- *Section 3.9, Noise*
- *Section 3.10, Recreation*
- *Section 3.11, Public Services and Utilities*
- *Section 3.12, Geology and Soils*
- *Section 3.13, Water Quality*
- *Section 3.14, Growth Inducing Impacts*
- *Section 3.15, Visual Resources*
- *Section 3.16, Biological Resources.*

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document.

- Agriculture—There is no land designated as agriculture in the project area.
- Coastal Zones—The project area is not located in a Coastal Zone.
- Energy—The proposed project would not involve changes to energy usage patterns or availability and would not have substantial energy impacts.
- Farmlands/Timberlands—There are no designated Farmlands or Timberlands in the project area.
- Paleontology—There are no known paleontological resources in the project area.
- Minerals—There are no known mineral resources in the project area.
- Population and Housing—The project would not affect population and housing.

3.1 Air Quality

The following discussion summarizes the existing air quality environment and regulatory environment, as well as an analysis of direct and indirect environmental effects of the action. Where feasible, minimization measures are recommended to reduce the severity of identified effects. A complete air quality study, providing additional methodology and results of the air quality modeling analysis, is provided in the *Kings Beach Commercial Core Revised Air Quality Technical Study* (Appendix C).

3.1.1 Affected Environment

3.1.1.1 Regional Climate and Meteorology

The proposed action is located within the Placer County portion of the Lake Tahoe Air Basin (LTAB). The LTAB consists of Placer and El Dorado Counties in California and Washoe, Carson City, and Douglas Counties in Nevada. Air quality within Placer County is managed by the Placer County Air Pollution Control Board (PCAPCD), and air quality within El Dorado County by the El Dorado County Air Pollution Control District (EDCAPCD). The Washoe County Air Quality Management Division regulates air quality within Washoe County, while the Nevada Bureau of Air Quality Control manages air quality in Carson City and Douglas Counties. TRPA has developed its own set of air quality standards and ordinances and has authority for overseeing and managing overall air quality within the LTAB. The LTAB comprises the surface of Lake Tahoe and the land up to the surrounding rim of mountain ridges, occupying approximately 193 square miles. Its average elevation is 6,200 feet. Deep valleys carved by streams draining into the lake break the precipitous mountain slopes surrounding the lake.

In winter, the meteorology of the LTAB is typified by large amounts of precipitation from Pacific storms that fall mainly as snow, accompanied by below freezing temperatures, winds, cloudiness, and lake and valley fog. Winter days can be cool and brilliantly clear between storms. Thermal inversions are a dominant feature of winter weather within the LTAB. In summer, days are often mild and sunny, with daytime

peaks in the upper 70s and low 80s (degrees Fahrenheit), with southern flows of moisture bringing an occasional thunderstorm.

The principal impact on air quality from these conditions is excess winter concentrations of carbon monoxide (CO) in the more congested and populated areas of the basin. This is seen primarily at South Lake Tahoe from the operation of vehicles, residential wood stoves, and fireplaces. The thermal inversions also trap pollutants near the surface of the land and Lake Tahoe, resulting in higher CO concentrations. Some transport of ozone from the west in summer is also known to occur, but the California Air Resources Board (ARB) has not yet officially recognized this as a transport route.

3.1.1.2 Criteria Pollutants and Local Air Quality of Concern in the Lake Tahoe Region

The federal and state governments have established ambient air quality standards for seven criteria pollutants: ozone, CO, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter less than or equal to 10 microns in diameter (PM₁₀), particulate matter less than 2.5 microns in diameter (PM_{2.5}), and lead (Pb). The State of California (State) has also established standards for hydrogen sulfide, vinyl chloride, and sulfates. National and California ambient air quality standards (NAAQS and CAAQS, respectively) are shown in Table 3.1-1.

Ozone and NO₂ (an ozone precursor) are considered regional pollutants because they affect air quality on a regional scale; oxides of nitrogen (NO_x), including NO₂, react photochemically with reactive organic gases (ROG) to form ozone some distance downwind of the source of pollutants. Pollutants such as CO, PM₁₀, and PM_{2.5} are considered local pollutants because they tend to disperse rapidly with distance from the source. PM_{2.5} is also a regional pollutant that travels and impacts downwind areas. The health effects of the pollutants of concern in the action area are discussed below.

Table 3.1-1. Ambient Air Quality Standards in California

Pollutant	Average Time	Standard (ppm)		Standard ($\mu\text{g}/\text{m}^3$)		Violation Criteria		Attainment Status of Placer County	
		California	National	California	National	California	National	California	National
Ozone*	1 hour	0.09	–	180	–	If exceeded	–	Attainment	–
	8 hours	0.070	0.08	137	157	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area	–	Unclassified/attainment
Carbon monoxide	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year	Attainment	–
	1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year	Attainment	–
(Lake Tahoe only)	8 hours	6	–	7,000	–	If equaled or exceeded	–	Attainment	Not Classified
Nitrogen dioxide	Annual average	–	0.053	–	100	–	If exceeded on more than 1 day per year	–	Unclassified/attainment
	1 hour	0.25	–	470	–	If exceeded	–	Attainment	–
Sulfur dioxide	Annual average	–	0.03	–	80	–	If exceeded	–	Attainment
	24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year	Attainment	Attainment
	1 hour	0.25	–	655	–	If exceeded	–	–	–
Hydrogen sulfide	1 hour	0.03	–	42	–	If equaled or exceeded	–	Unclassified	–
Vinyl chloride	24 hours	0.01	–	26	–	If equaled or exceeded	–	No designation	–
Inhalable particulate matter (PM10)	Annual arithmetic mean	–	–	20	–	If exceeded	If exceeded at each monitor within area	Nonattainment	Unclassified/attainment
	24 hours	–	–	50	150	If exceeded	If exceeded on more than 1 day per year	Nonattainment	Unclassified/attainment

Table 3.1-1. Continued

Pollutant	Average Time	Standard (ppm)		Standard ($\mu\text{g}/\text{m}^3$)		Violation Criteria		Attainment Status of Placer County	
		California	National	California	National	California	National	California	National
Inhalable particulate matter (PM _{2.5})	Annual arithmetic mean	—	—	12	15	If exceeded	If 3-year average from single or multiple community-oriented monitors is exceeded	Attainment	No designation
	24 hours	—	—	—	35	—	If 3-year average of 98P th P percentile at each population-oriented monitor within an area is exceeded	—	No designation
Sulfate particles	24 hours	—	—	25	—	If equaled or exceeded	—	Attainment	—
Lead particles	Calendar quarter	—	—	—	1.5	—	If exceeded no more than 1 day per year	—	No designation
	30-day average	—	—	1.5	—	If equaled or exceeded	—	Attainment	—

Notes: All standards are based on measurements at 25°C and 1 atmosphere pressure.

National standards shown are the primary (health effects) standards.

— = not applicable.

* The U.S. Environmental Protection Agency recently replaced the 1-hour ozone standard with an 8-hour standard of 0.08 part per million. EPA issued a final rule that will revoke the 1-hour standard on June 15, 2005. However, the California 1-hour ozone standard will remain in effect. California's 8-hour standard of 0.07 ppm was approved in June 2005.

Source: California Air Resources Board 2003.

Ozone

Ozone is a severe eye, nose, and throat irritant that increases susceptibility to respiratory infections. Ozone causes extensive damage to plants through leaf discoloration and cell damage. Ozone also attacks synthetic rubber, textiles, and other materials. Ozone is not emitted directly into the air but formed by a photochemical reaction in the atmosphere. Ozone precursors react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. Mobile sources and stationary combustion equipment emit ozone precursors (ROG and NO_x).

Carbon Monoxide

CO is essentially inert to plants and materials but can have significant effects on human health. CO combines readily with hemoglobin and thereby reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions, which can cause CO “hotspots” typical of the South Lake Tahoe area. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Inhalable Particulate Matter

Federal and state ambient air quality standards for particulate matter apply to two classes of particulates: PM_{2.5} and PM₁₀. Particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode materials. In the LTAB, there are additional concerns regarding particulate matter because particles are deposited into Lake Tahoe and reduce lake clarity.

Sulfur Oxides

Sulfur oxide gases are a family of colorless, pungent gases (including SO₂) formed primarily by combustion of sulfur-containing fossil fuels (mainly coal and oil), metal smelting, and other industrial processes. Sulfur oxides can react to form sulfates, which significantly reduce visibility and are regional pollutants that travel to the LTAB from upwind sources. The major health concerns associated with exposure to high concentrations of sulfur oxides include effects on breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Emissions of sulfur oxides can also damage tree foliage and agricultural crops. Together, sulfur oxides and nitrogen oxides are the major precursors to acid rain, which is associated with the acidification of lakes and streams and the accelerated corrosion of buildings and monuments.

Vinyl Chloride

Vinyl chloride is a sweet-smelling, colorless gas at ambient temperature. Landfills, publicly owned treatment works, and polyvinyl chloride production are the major identified sources of vinyl chloride emissions in California. Polyvinyl chloride can be fabricated into several products such as pipes, pipe fittings, and plastics. In humans, epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer (liver angiosarcoma) and have suggested a relationship between exposure and lung and brain cancers.

Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used several decades ago to increase the octane rating in gasoline, thereby making gasoline-powered automobile engines a major source of airborne lead. Ambient concentrations of lead have dropped dramatically because the use of leaded fuel has been mostly phased out. Short-term exposure to high levels of lead can cause vomiting,

diarrhea, convulsions, coma, or even death, but even small amounts of lead can be harmful, especially to infants, young children, and pregnant women.

Hydrogen Sulfide

Hydrogen sulfide gas is colorless, with a characteristic odor of rotten eggs. Atmospheric hydrogen sulfide is primarily oxidized to SO₂, which is eventually converted into sulfate, then sulfuric acid. When sulfuric acid is transported back to the earth through acid rain, it can damage plant tissue and aquatic ecosystems. Hydrogen sulfide is primarily associated with geothermal activity and oil production activities. It can cause dizziness; irritation to the eyes, mucous membranes, and respiratory tract; nausea; and headaches at low concentrations. Exposure to higher concentrations (above 100 parts per million [ppm]), can cause olfactory fatigue, respiratory paralysis, and death.

Toxic Air Contaminants

Toxic air contaminants (TACs) are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, the ARB identified particulate matter from diesel-fueled engines as a TAC. Compared to other air toxics that the ARB has identified and controlled, diesel particulate matter emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (California Air Resources Board 2000).

The CAA identifies 188 pollutants as being air toxics, which are also known as hazardous air pollutants (HAPs). From this list, the U.S. Environmental Protection Agency (EPA) identifies a group of 21 as mobile source air toxics (MSATs) in their final rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 Federal Register [FR] 17235) in March 2001. From this list of 21 MSATs, the EPA identifies six MSATs—benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene—as being priority MSATs. To address emissions of MSATs, the EPA has issued a number of regulations that will dramatically decrease

MSATs through cleaner fuels and cleaner engines. The area of air toxics analysis is a new and emerging issue and is a continuing area of research. Although much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques available for assessing project-specific health impacts from MSATs are limited. Given the emerging state of the science and of project-level analysis techniques, there are no established criteria for determining when MSAT emissions should be considered a significant issue in the context of NEPA. The Federal Highway Administration (FHWA) is currently preparing guidance as to how mobile source health risks should factor into project-level decision-making under NEPA. In addition, the EPA has not established regulatory concentration targets for the six relevant MSAT pollutants appropriate for use in the project development process. In light of the recent development regarding MSATs, the FHWA has issued interim guidance for the assessment of MSATs in NEPA documents (Federal Highway Administration 2006).

3.1.1.3 Existing Air Quality Conditions

Typically, the existing air quality conditions in the action area can be characterized by monitoring data collected in the region. However, due to the rural nature and varied topography of the LTAB, monitoring stations to accurately characterize existing air quality conditions are not located in the immediate vicinity of the action area. The nearest monitoring stations in the LTAB include the Tahoe City (Lake Forest) monitoring station, which is located 8 miles to the southwest and monitors for ozone and CO; Echo Summit monitoring station, which is located 30 miles to the south and monitors for ozone, CO, and PM10; and South Lake Tahoe monitoring station, which is located 20 miles to the south and monitors for ozone, CO, PM10, and PM2.5. Outside of these monitoring stations, the next closest monitoring station is the Truckee monitoring station, which monitors for ozone and PM2.5, and is located 10 miles to the northwest in the Mountain Counties Air Basin.

The Tahoe City air quality site was installed as part of a short-term air quality study led by the ARB. Due to ongoing technical problems that resulted in an inability to collect sound CO data, the CO instruments from this site will not be used for this analysis. The Echo Summit data is not used to assess conditions in the LTAB because local topography and activities in the immediate vicinity of this site have a significant influence on these data, while the Truckee monitoring station is not located within the LTAB.

Table 3.1-2 summarizes air quality data from these monitoring stations from 2003 to 2005. As shown in the table, the monitoring stations in the vicinity of the action area have experienced occasional violations of several ambient air quality standards during the 3-year monitoring period. Placer County's attainment status for each ambient air quality standard is shown in Table 3.1-2. Due to the various problems associated with the Tahoe City and Echo Summit monitoring sites, this analysis relies primarily on data from the South Lake Tahoe site. However, while it is expected that the use of South Lake Tahoe data to evaluate pollutants that can be very localized (such as CO) will include some uncertainty, it is anticipated that the monitoring data presented in Table 3.1-2 gives a "macro level" representation of existing air quality conditions within the LTAB.

3.1.1.4 Sensitive Receptors

Sensitive receptors are locations where human populations—especially children, seniors, and sick persons—are located where there is reasonable expectation of continuous human exposure according to the averaging time for an air quality standard (e.g., 24-hour, 8-hour, 1-hour). These typically include residences, hospitals, and schools. Residences are scattered throughout the vicinity of the action area.

3.1.2 Regulatory Setting/ Tahoe Regional Planning Agency Thresholds

The air quality management agencies of direct importance in Placer County include the EPA, ARB, PCAPCD, and TRPA. The EPA establishes NAAQS for which ARB and PCAPCD have primary implementation responsibility.

The ARB and PCAPCD are responsible for ensuring that CAAQS are met. The ARB oversees the activities of the local air districts, but it does not permit stationary sources of air pollutants, which is the responsibility of the local air districts. The ARB has the authority for setting vehicle emissions standards for on-road vehicles and for some off-road vehicles. The ARB also identifies and sets control measures for TACs.

The PCAPCD is responsible for implementing strategies for air quality improvement and recommending mitigation measures for new growth and development. It also adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs and regulated agricultural burning. Other PCAPCD responsibilities include monitoring air quality, preparation of clean air plans, and responding to citizen air quality complaints. In addition to planning responsibilities, the PCAPCD has permitting authority over stationary sources of pollutants. Authority over mobile sources of pollutants is given to the ARB.

TRPA is responsible for planning within the Lake Tahoe region and oversees development at Lake Tahoe. TRPA has the authority to adopt environmental quality thresholds and to enforce ordinances designed to achieve the thresholds. TRPA's authority is granted directly from Congress; therefore, it has the authority to adopt environmental thresholds, which include air quality thresholds that must be recognized by federal, state, and local agencies. TRPA is required to adopt ordinances or regulations that allow for development while also meeting the threshold standards.

3.1.2.1 Federal Requirements

Federal Clean Air Act

The CAA as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called NAAQS. Standards have been established for six criteria pollutants that have been

Table 3.1-2. Ambient Air Quality Monitoring Data Measured at the Echo Summit, South Lake Tahoe, Tahoe City, and Truckee Monitoring Stations

Pollutant Standards	Echo Summit ^a			South Lake Tahoe			Tahoe City			Truckee		
	2003	2004	2005	2003	2004	2005	2003	2004	2005	2003	2004	2005
Ozone												
Maximum 1-hour concentration (ppm)	0.082	0.096	0.079	0.075	0.066	–	0.086	0.065	–	0.068	0.086	0.080
Maximum 8-hour concentration (ppm)	0.079	0.082	0.070	0.066	0.058	–	0.070	0.061	–	0.062	0.072	0.068
Number of days standard exceeded ^b												
NAAQS 1-hour (>0.12 ppm)	0	0	0	0	0	–	0	0	–	0	0	0
CAAQS 1-hour (>0.09 ppm)	0	1	0	0	0	–	0	0	–	0	0	0
NAAQS 8-hour (>0.08 ppm)	0	0	0	0	0	–	0	0	–	0	0	0
Carbon Monoxide (CO)												
Maximum 8-hour concentration (ppm)	1.86	4.35	–	1.51	1.18	–	0.81	0.53	–	–	–	–
Maximum 1-hour concentration (ppm)	2.4	6.1	–	2.4	2.2	–	1.4	.9	–	–	–	–
Number of days standard exceeded ^b												
NAAQS 8-hour (U _≥ U9.0 ppm)	0	0	–	0	0	–	0	0	–	–	–	–
CAAQS 8-hour (U _≥ U9.0 ppm)	0	0	–	0	0	–	0	0	–	–	–	–
NAAQS 1-hour (U _≥ U35 ppm)	0	0	–	0	0	–	0	0	–	–	–	–
CAAQS 1-hour (U _≥ U20 ppm)	0	0	–	0	0	–	0	0	–	–	–	–
Lake Tahoe 8-hour (U _≥ U6 ppm) ^c	0	0	–	0	0	–	0	0	–	–	–	–
Particulate Matter (PM10)^d												
National ^e maximum 24-hour concentration (µg/m ³)	46.0	24.0	–	61.0	47.0	38.0	–	–	–	–	–	–
National ^e second-highest 24-hour concentration (µg/m ³)	22.0	23.0	–	41.0	45.0	38.0	–	–	–	–	–	–
State ^f maximum 24-hour concentration (µg/m ³)	36.0	19.0	–	52.0	41.0	33.0	–	–	–	–	–	–
State ^f second-highest 24-hour concentration (µg/m ³)	18.0	18.0	–	36.0	41.0	32.0	–	–	–	–	–	–
National annual average concentration (µg/m ³)	7.9	8.3	–	8.8	13.4	17.5	–	–	–	–	–	–
State annual average concentration (µg/m ³) ^g	6.3	–	–	17	17	15	–	–	–	–	–	–

Table 3.1-2. Continued

Pollutant Standards	Echo Summit ^a			South Lake Tahoe			Tahoe City			Truckee		
	2003	2004	2005	2003	2004	2005	2003	2004	2005	2003	2004	2005
Number of days standard exceeded ^a												
NAAQS 24-hour ($>150 \mu\text{g}/\text{m}^3$) ^h	0.0	–	–	0.0	–	0.0	–	–	–	–	–	–
CAAQS 24-hour ($>50 \mu\text{g}/\text{m}^3$) ^h	0.0	–	–	6.1	–	0.0	–	–	–	–	–	–
Particulate Matter (PM_{2.5})												
National ^e maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	–	–	–	21.0	20.0	–	–	–	–	21.0	34.0	35.0
National ^e second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	–	–	–	19.0	16.0	–	–	–	–	20.0	18.0	20.0
State ^f maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	–	–	–	24.0	23.2	–	–	–	–	21.0	34.0	35.0
State ^f second-highest 24-hour concentration ($\mu\text{g}/\text{m}^3$)	–	–	–	23.6	17.5	–	–	–	–	20.0	18.0	20.0
National ^e annual average concentration ($\mu\text{g}/\text{m}^3$)	–	–	–	7.2	–	–	–	–	–	7.2	6.8	6.8
State ^e annual average concentration ($\mu\text{g}/\text{m}^3$) ^g	–	–	–	7.2	–	–	–	–	–	7.2	7.7	–
Number of days standard exceeded ^b												
NAAQS 24-hour ($>65 \mu\text{g}/\text{m}^3$)	–	–	–	0	0	–	–	–	–	0	0	0

Notes:

- CAAQS = California ambient air quality standards.
 NAAQS = national ambient air quality standards.
 – = insufficient data available to determine the value.

^a The Echo Summit air monitoring station is not located within the Lake Tahoe Air Basin.

^b An exceedance is not necessarily a violation.

^c A separate 8-hour carbon monoxide standard of 6 ppm has been established for the Lake Tahoe Air Basin.

^d Measurements usually are collected every 6 days.

^e National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

^f State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.

^g State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

^h Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2004; U.S. Environmental Protection Agency 2005.

linked to potential health concerns; the criteria pollutants are: CO, NO₂, ozone, particulate matter, lead (Pb), and SO₂.

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to State Implementation Plan for achieving the goals of the CAA requirements. Conformity with the CAA takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity in California is concerned with how well the region is meeting the standards set for CO, NO₂, ozone, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, regional transportation plans (RTPs) are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the CAA are met. If the conformity analysis is successful, the regional planning organization, such as TRPA for the Tahoe region and the appropriate federal agencies, such as the FHWA, make the determination that the RTP is in conformity with the State Implementation Plan for achieving the goals of the CAA. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is “nonattainment” or “maintenance” for CO and/or particulate matter. A region is a “nonattainment” area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called “maintenance” areas. “Hot spot” analysis is

essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA and CEQA purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the CO standard to be violated, and in “nonattainment” areas the project must not cause any increase in the number and severity of violations. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

The project is located in an attainment/unclassified areas for all current federal air quality standards. Therefore, conformity requirements do not apply.

Transportation Conformity Requirements

The concept of transportation conformity was introduced in the 1977 CAA, which includes a provision to ensure that transportation investments conform to the SIPs for meeting NAAQS. Conformity requirements were made substantially more rigorous in the Clean Air Act Amendments of 1990, and the transportation conformity regulation that details implementation of the new requirements was issued in November 1993.

Typically, evaluating whether a project is included in a conforming RTP or transportation improvement plan (TIP) is done to determine transportation conformity for ozone precursors. Because PM10 and CO are localized pollutants, the determination of transportation conformity for these pollutants is assessed by identifying whether the proposed action would generate elevated “hotspot” concentrations. The determination of conformity for PM10 and PM2.5 is qualitative, and the determination for CO is quantitative.

Particulate Matter

The proposed project is located in an unclassified/attainment area for the federal PM10 and PM2.5 standards. Because the area is not classified as a maintenance or nonattainment area for this standard, a conformity determination for PM10 and PM2.5 are not required under the federal transportation conformity requirements.

3.1.2.2 State Requirements

The California Clean Air Act requires local and regional air pollution control districts that are not attaining one or more of the CAAQS for ozone, CO, SO₂, or NO₂ to expeditiously adopt district-level air quality management plans, called clean air plans (CAPs), that are specifically designed to attain these standards. Each CAP must be designed to achieve an annual 5% reduction in districtwide emissions of each nonattainment pollutant or its precursors, and they must be updated every 3 years. The ARB is responsible for developing plans and projects that achieve compliance with the state PM₁₀ standards. Although there are state ambient standards for lead, sulfates, vinyl chloride, and hydrogen sulfide, the California Clean Air Act does not require that CAPs be developed for them.

3.1.2.3 Local Requirements

Placer County Air Pollution Control District

The proposed action would be subject to the following PCAPCD rules, which have been adopted by the PCAPCD to reduce emissions throughout Placer County and are required.

- **Rule 202: Visible Emissions.** The purpose of Rule 202 is to establish limits regarding the opacity of emissions.
- **Rule 205: Nuisance.** The purpose of Rule 205 is to limit emissions of any substance that would cause a nuisance to the public.
- **Rule 207: Particulate Matter.** The purpose of Rule 207 is to establish limits regarding the emissions of particulate matter.
- **Rule 228: Fugitive Dust.** The purpose of Rule 228 is to reduce the amount of particulate matter entrained and discharged into the air by requiring actions to prevent, reduce, or minimize fugitive dust emissions. This rule also applies to construction activities.

- **Rule 242: Stationary Internal Combustion Engines.** The purpose of Rule 242 is to limit the emission of NO_x and CO from stationary internal combustion engines. This rule would apply to any internal combustion engines rated at more than 50 brake horsepower operating more than 200 hours per year. This rule would apply to construction activities that occur for more than 200 hours per year.
- **Rule 501: General Permit Requirements.** The purpose of Rule 501 is to provide an orderly procedure for the review of new sources of air pollution and the orderly review of the modification and operation of existing sources through the issuance of permits. This rule does not apply to internal combustion engines with a manufacturer's maximum continuous rating of 50 brake horsepower or less or to gas turbine engines with a maximum heat input rate of 3,000,000 British thermal units per hour or less at ISO [International Organization for Standardization] standard day conditions (288 degrees Kelvin, 60% relative humidity, 101.3 kilopascals pressure).
- **Rule 509: Transportation Conformity.** Rule 509 summarizes the requirements for the conformity of transportation plans, programs, and projects developed, funded, or approved under *U.S. Government Code (U.S.C.) Title 23* or the federal Transit Act to state or federal implementation plans.

Tahoe Regional Planning Agency

The TRPA has developed eight air quality standards and indicators with the goal of protecting the air quality in the Lake Tahoe region. They are summarized below.

- **AQ-1: Carbon Monoxide.** CO levels will not meet or exceed the TRPA 8-hour 6.0-ppm standard. The indicator for attainment of this standard is the second-highest CO concentration read at the Stateline, Nevada, station (ppm). This threshold is applicable to the proposed action, and TRPA is in attainment for this threshold.
- **AQ-2: Ozone.** Ozone levels will not exceed the TRPA 1-hour standard of 0.08 ppm. Attainment is based on the number of 1-hour periods, which equal or exceed the federal, Nevada, or TRPA standard at any of the permanent monitoring sites

(unitless), and the number of 1-hour periods that exceed the California standard. This threshold is applicable to the proposed action, and TRPA is in nonattainment for the 1-hour threshold.

- **AQ-3: Particulate Matter.** Particulate matter concentrations will not exceed the California and federal standards for 24-hour concentrations (50 and 150 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$], respectively) and the annual average (20 and 50 $\mu\text{g}/\text{m}^3$). Attainment is based on the number of 24-hour periods exceeding the applicable federal or state standards at any permanent monitoring station (unitless) and the annual average PM10 concentration at any monitoring station ($\mu\text{g}/\text{m}^3$). This threshold is applicable to the proposed action, and TRPA is in attainment for this threshold.
- **AQ-4: Visibility.** TRPA's regional and subregional visibility standards will not be violated. In addition, for regional and subregional visibility, wood smoke concentrations will be reduced 10% below the 1981 levels for regional and subregional visibility. Suspended soil particles will be reduced 30% below the 1981 levels. For regional visibility, visual range is calculated from aerosol data gathered at the D. L. Bliss State Park monitoring site. For subregional visibility, visibility is calculated from aerosol data gathered at the Lake Tahoe Boulevard station. For state visibility standards, visual range is calculated from nephelometer data collected at Bliss State Park and Lake Tahoe Boulevard for periods in which relative humidity is less than 70%. This threshold is applicable to the proposed action, and TRPA is in nonattainment for the regional 90% threshold.
- **AQ-5: Traffic Volume.** There will be a 7% reduction in traffic volume on the U.S. Highway 50 (U.S. 50) corridor from the 1981 values. The standard uses the average traffic volume from 4 p.m. to midnight from November through February. Traffic volumes on U.S. 50, recorded at a site immediately west of the intersection of Park Avenue in the city of South Lake Tahoe, include a count of both directions during an average day. TRPA selected this indicator because of the timing of the highest CO concentrations, which generally occur during these time periods in this

area. This threshold is applicable to the proposed action, and TRPA lacks sufficient data to evaluate whether they are in attainment for this threshold, although it is possible they are in attainment.

- **AQ-6: Wood Smoke.** Annual emissions from wood smoke will be reduced 10% from 1981 levels. There are currently no scientifically sound direct measurements for wood smoke, although indicative aerosol constituents have been used to analyze wood smoke trends. This threshold is not applicable to the proposed action, and TRPA lacks sufficient data to evaluate whether they are in attainment for this threshold, although it is likely they are in nonattainment.
- **AQ-7: Vehicle Miles Traveled.** Vehicle miles traveled (VMT) will be reduced 10% below the 1981 levels. Typically, VMT is calculated directly from a traffic model. However, for the purposes of the 2001 Threshold Evaluation, TRPA utilized the 1995 VMT estimate from the TranPlan traffic model and applied a factor to account for actual increases in traffic volumes from 1995 through 1999. Actual current traffic volumes were closer to the 1995 TranPlan generated traffic volumes than they were to the 2001 forecasted traffic volumes. A factor was then developed comparing the 1995 model-generated traffic volumes to the current actual volumes. This relationship was then applied to the 1995 VMT estimate to account for increase in traffic in that time period and estimate the current year VMT. This threshold is applicable to the proposed action, and TRPA is in nonattainment for the threshold.
- **AQ-8: Atmospheric Deposition.** Dissolved inorganic nitrogen load on Lake Tahoe from atmospheric sources will be reduced by approximately 20% of the 1973–1981 annual average using the annual average concentrations of particulate NO₃ at the Lake Tahoe Boulevard air quality monitoring station and the annual average concentrations of NO₂ at a Stateline, Nevada, monitoring station. TRPA has adopted the following indicator for NO₃: “Annual average concentration of particulate NO₃ at the Lake Tahoe Boulevard air quality monitoring station (µg/m³).” The associated interim target is “not greater than 1.27 µg/m³.” This monitoring station was relocated in 1998; therefore, the annual average concentrations from CARB’s South Lake

Tahoe Sandy Way station are used to determine attainment. This threshold is indirectly applicable to the proposed action, and TRPA lacks sufficient data to evaluate whether they are in attainment for this threshold, although they are in attainment for the interim target.

3.1.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

This section describes the proposed action's effects on air quality. First, it describes the methods used to determine the proposed action's impacts associated with construction (temporary, short-term) and operation (permanent, long-term). Second, it lists the thresholds used to conclude whether an effect would be adverse. Third, it describes each impact and any minimization measures that would be implemented.

3.1.3.1 Methodology

Alternative 1

Alternative 1 represents the existing roadway configuration, which would remain unchanged in the future.

Alternatives 2, 3, and 4

Alternatives 2, 3, and 4 represent the build alternatives. The following discussion focuses on the build alternatives, which would not differ substantially with regard to air quality because traffic volumes would not vary between the alternatives.

Construction

Construction emissions of ROG, NO_x, CO, and PM₁₀ were estimated using the Road Construction Emissions Model (Version 5.1). The road construction model is a public-domain spreadsheet model formatted as a series of individual worksheets. The model enables users to estimate emissions using a minimum amount of project-specific information. The model estimates emissions for load hauling (on-road heavy-duty vehicle trips), worker commute trips, construction site fugitive PM₁₀ dust, and off-road

construction vehicles. This analysis is based on anticipated construction equipment calculated by the Road Construction Emissions Model, which estimates construction equipment based on project size, duration of construction activities, and level of daily construction activities. Although exhaust emissions are estimated for each activity, fugitive dust estimates are currently limited to the major dust-generating activities, which include grubbing/land clearing and grading/excavation.

The amount of pollutants emitted during construction activities varies greatly depending on the level of activity, specific operations taking place, equipment being operated, soil characteristics, and weather conditions. Despite this variability in emissions, experience has shown that several feasible control measures can be reasonably implemented to reduce PM₁₀ emissions from fugitive dust and equipment exhaust emissions during construction.

Operation

Emissions of Criteria Pollutants

Vehicle Emission Rates

Vehicle emission rates were determined using the ARB's EMFAC2002 emission rate program. Free-flow traffic speeds were adjusted to reflect congested speeds using methodology from the *Highway Capacity Manual* (Transportation Research Board 2000), and particulate matter estimates incorporated emissions from brake and tire wear. Guidance provided by TRPA staff indicates that Lake Tahoe's environment and economy result in a local climate and residential/visitor population that is rather different than those parts of the counties that are outside the Lake Tahoe Basin and other areas in California. Specifically, default data included in the EMFAC2002 does not accurately represent the meteorological data, vehicle speed, and actual fleet mix of vehicles present in the Tahoe area (Quashnick pers. comm.). As a result, the default fleet mix for the Lake Tahoe region was replaced with area-specific data provided by the TRPA. Because emissions of ozone precursors and temperature are directly related, the highest summer

peak hour traffic conditions were modeled to estimate worst-case emissions of ozone precursors for the proposed action.

Roadway and Traffic Conditions

Traffic volumes and operating conditions used in the modeling were obtained from the traffic analysis prepared by the project traffic engineers (LSC Transportation Consultants, Inc. 2003; Shaw pers. comm.) Emissions of ozone precursors (ROG and NO_x), CO, and PM₁₀ for existing and future year (2028) project conditions under each alternative were modeled using EMFAC2002. Interim year (2008) emissions of criteria pollutants were not estimated because future year (2028) conditions represent final project buildout conditions. Emissions for peak hour and non-peak hour conditions were estimated to obtain overall daily emissions. For this analysis, the roadway network was assumed to operate at a daily average of LOS A for non-peak hour conditions. In addition, the proposed action is not a traffic-generating project and would not result in differences in traffic volumes throughout the action area between build and no-build conditions.

Carbon Monoxide Impacts at Congested Intersections

CALINE4 Model

Localized increases in CO concentrations from vehicle congestion at intersections affected by development were modeled using the Caltrans CALINE4 line source dispersion model (Benson 1989). CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway segment analyzed in the model is treated as a sequence of “links.” CALINE4 uses worst-case meteorological data to predict a concentration that would never be exceeded, thus producing a conservative estimate of a project’s potential effects. Because CO emissions and temperature are inversely related, the highest winter peak hour traffic conditions were modeled to estimate the worst-case CO concentrations for the proposed action.

Roadway and Traffic Conditions

Traffic volumes and operating conditions used in the modeling were obtained from the traffic analysis prepared by the project traffic engineers (LSC Transportation Consultants, Inc. 2003; Shaw pers. comm.). Ambient CO concentrations near the roadway for existing, interim year (2008), and future year (2028) project conditions under each alternative were modeled using CALINE4. The intersections of SR 28/SR 267, SR 28/Secline Street, SR 28/Deer Street, SR 28/Bear Street, SR 28/Coon Street, SR 28/Fox Street, and SR 28/Chipmunk Street were modeled to assess CO impacts.

Vehicle Emission Rates

Vehicle emission rates were determined using the ARB's EMFAC2002 emission rate program. Free-flow traffic speeds were adjusted to reflect congested speeds using methodology from the *Highway Capacity Manual* (Transportation Research Board 2000). As indicated above, the TRPA has identified Lake Tahoe as having a local climate and residential/visitor population that is rather different than the parts of the counties that are outside the basin and other areas in California. Therefore, the default fleet mix and meteorological data for the Lake Tahoe region were replaced with area-specific data provided by the TRPA (Quashnick pers. comm.).

Modeled Receptor Locations

CO concentrations were estimated at locations representing the nearest sensitive receptors in the vicinity of the intersections of SR 28/SR 267, SR 28/Secline Street, SR 28/Deer Street, SR 28/Bear Street, SR 28/Coon Street, SR 28/Fox Street, and SR 28/Chipmunk Street. In addition, receptors were modeled at locations throughout the action area representing the residential land uses situated off SR 28, along the roadways parallel to SR 28. Table 3.1-3 and Figure 3.1-1 indicate the locations of modeled receptors in the action area. Receptors were chosen based on the CO protocol developed for Caltrans (Garza 1997). Receptor heights were set at 1.80 meters (5.9 feet).

Table 3.1-3. General Locations of Receptors

Receptor Positions	General Location
1A to 1C	Intersection of SR 28/SR 267
2A to 2D	Intersection of SR 28/Secline Street
3A to 3 D	Intersection of SR 28/Deer Street
4A to 4D	Intersection of SR 28/Bear Street
5A to 5E	Intersection of SR 28/Coon Street
6A to 6E	Intersection of SR 28/Fox Street
7A to 7C	Intersection of SR 28/Chipmunk Street
A1	South of SR 267
B1 to B3	Between SR 267 and Secline Street
C1 to C7	Between Secline Street and Deer Street
D1 to D4	Between Deer Street and Bear Street
E1 to E4	Between Bear Street and Coon Street
F1 to F9	Between Coon Street and Fox Street
G1 to G12	Between Fox Street and Chipmunk Street
H1 to H6	East of Chipmunk Street
Note:	
Refer to Figure 3.1-1 for receptor locations.	

Meteorological Conditions

Meteorological inputs to the CALINE4 model were determined using methodology recommended in the CO protocol (Garza 1997). The meteorological conditions used represent a calm winter period. The worst-case wind angles option was used to determine a worst-case concentration for each receptor. The meteorological inputs include: 3.28 feet per second (1.0 meter per second) wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to 30° Fahrenheit (–1.11° Celsius), ambient temperature of 30°F (–1.11° Celsius), altitude above sea level of 1,914 meters (6,280 feet), and a mixing height of 1,000 meters (3,281 feet).

Background Concentrations and 8-Hour Values

To account for sources of ambient CO not included in the modeling, 1- and 8-hour background concentrations of 1.2 and 0.7 ppm, respectively, were added to the modeled 1-hour and 8-hour values for existing and future years. These values represent the average highest monitored values over the last 2 years that data is available at the closest monitoring station (Tahoe City). Actual 1- and 8-hour background concentrations in future years would likely be lower than those used in the CO modeling analysis because the trend in CO emissions and concentrations is decreasing because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles. Modeled 8-hour values were calculated from the 1-hour values using a persistence factor of 0.6.

Mobile Source Air Toxics

The FHWA has issued interim guidance on how MSATs should be addressed in NEPA documents for highway projects (Federal Highway Administration 2006). The FHWA has developed a tiered approach for analyzing MSATs in NEPA documents. Depending on the specific project circumstances, FHWA has identified three levels of analysis.

- No analysis for exempt projects or projects with no potential for meaningful MSAT effects.
- Qualitative analysis for projects with a low potential for MSAT effects.
- Quantitative analysis to differentiate alternatives for projects with a higher potential for MSAT effects.

Exempt Projects or Projects with No Meaningful Potential MSAT Effects

The types of projects included in this category are:

- projects qualifying as a categorical exclusion under *23 CFR 771.117(c)*,
- projects exempted by the CAA conformity rule under *40 CFR 93.126*; or
- other projects with no meaningful impacts on traffic volumes or vehicle mix.

Projects that are categorically excluded under 23 *CFR* 771.117(c), or are exempt under the CAA pursuant to 40 *CFR* 93.126, require no analysis or discussion of MSATs.

Documentation sufficient to demonstrate that the project qualifies as a categorical exclusion and/or exempt project will suffice. For other projects with negligible or no traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is required. However, the project record must document the basis for the determination of “no meaningful potential impacts” with a brief description of the factors considered.

Projects with a Low Potential for MSAT Effects

This category covers a broad range of projects, as projects included in this category are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions.

The FHWA anticipates that most highway projects will fall into this category. Any projects not meeting the threshold criteria for higher potential effects set forth in subsection (3) above and not meeting the criteria in subsection (1) above should be included in this category. Examples of these types of projects are minor widening projects and new interchanges, such as those that replace a signalized intersection on a surface street or where design-year traffic is not projected to meet the 140,000–150,000 Annual Average Daily Traffic (AADT) criterion.

A qualitative assessment of emissions projections should be conducted for these projects. The qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic, and the associated changes in MSATs for the project alternatives, based on VMT, vehicle mix, and speed. It would also discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA. Because the emission effects of these projects are low, the FHWA expects there would be no appreciable difference in overall MSAT emissions among the various alternatives. In addition, quantitative

emissions analysis of these types of projects will not yield credible results that are useful to project-level decision-making due to the limited capabilities of the transportation and emissions forecasting tools.

Projects with a Higher Potential for MSAT Effects

Projects included in this category have the potential for meaningful differences among project alternatives. The FHWA expects only a limited number of projects to meet this two-pronged test. To fall into this category, projects must:

- create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location; or
- create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000¹, or greater, by the design year; and must also
- be proposed to be located in proximity to populated areas or in rural areas in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

Projects falling within this category should be more rigorously assessed for impacts, and the FHWA should be contacted for assistance in developing a specific approach for assessing impacts. This approach would include a quantitative analysis that would attempt to measure the level of emissions for the six priority MSATs for each alternative, to use as a basis of comparison. This analysis also may address the potential for cumulative impacts, where appropriate, based on local conditions. How and when cumulative impacts should be considered would be addressed as part of the assistance outlined above. If the analysis for a project in this category indicates meaningful

¹ Using EPA's MOBILE6.2 emissions model, FHWA technical staff determined that this range of AADT would be roughly equivalent to the CAA definition of a major HAP source (i.e., 25 tons per year (tpy) for all HAPs or 10 tpy for any single HAP). Significant variations in conditions such as congestion or vehicle mix could warrant a different range for AADT.

differences in levels of MSAT emissions, minimization options should identified and considered.

In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

MSATs are a subset of the 188 air toxics defined by the CAA. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead federal agency for administering the CAA and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (*66 FR 17229*) (March 29, 2001). This rule was issued under the authority in Section 202 of the CAA. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent.

As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another

rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.

Unavailable Information for Project Specific MSAT Impact Analysis

This EA includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this EA. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

1. **Emissions.** The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model-- emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed.

Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

2. **Dispersion.** The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of CO to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.
3. **Exposure Levels and Health Effects.** Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of

MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs

Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human

health effects that may result from exposure to various substances found in the environment. The IRIS database is located at <<http://www.epa.gov/iris>>. The following toxicity information for the six prioritized MSATs was taken from the IRIS database *Weight of Evidence Characterization* summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- **Diesel** exhaust also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway

MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes—particularly respiratory problems². Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of Impacts Based upon Theoretical Approaches or Research Methods Generally Accepted in the Scientific Community

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have “significant adverse impacts on the human environment.”

² South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); Highway Health Hazards, The Sierra Club (2004) summarizing 24 Studies on the relationship between health and air quality); NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles, Environmental Law Institute, 35 ELR 10273 (2005) with health studies cited therein.

In this document, FHWA has provided a qualitative analysis of MSAT emissions relative to the various alternatives, and has acknowledged that all project alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated. Please also contact the Office of Environment, Planning and Realty (Michael Koontz or Pamela Stephenson) to obtain additional supporting documentation for review and inclusion in the administrative record.

Impact AIR-1: Generation of Construction-Related Emissions of Ozone Precursors (Reactive Organic Gases and Oxides of Nitrogen), Carbon Monoxide, and Particulate Matter in Excess of Placer County Air Pollution Control District Standards

Alternative 1

Under Alternative 1, no construction or associated emissions would occur.

Alternatives 2, 3, and 4

Construction activities for the proposed action would result in short-term effects on ambient air quality in the area. Temporary construction emissions would result from grubbing/land clearing, grading/excavation, drainage/utilities/subgrade, and paving activities and construction worker commuting patterns. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather. It is anticipated that construction activities would begin in 2007 and continue for approximately 24 to 36 months.

The Road Construction Emissions Model (Version 5.1) was used to estimate construction-related ozone precursors (ROG and NO_x), CO, and PM₁₀ emissions from construction activities. It was assumed that construction activities would occur for 8 hours per day over a 12-month period. The total project length was assumed to be 0.9 mile, with a total acreage of 9.0 acres and a maximum of 1 acre disturbed per day.

The results of modeling for construction activities, summarized in Table 3.1-4, indicate that impacts from construction activities would not exceed the PCAPCD thresholds.

Table 3.1-4. Modeled Construction Emission Estimates (pounds/day)

Construction Phase	ROG	NO _x	CO	PM10
Grubbing/land clearing	9	57	44	8
Grading/excavation	9	60	48	8
Drainage/utilities/sub-grade	9	60	51	9
Paving	4	28	17	2
PCAPCD Construction Thresholds	82	82	550	82
Note:				
Emissions calculations based on Road Construction Emissions Model (Version 5.1)				

Although emissions are below PCAPCD threshold levels, they recommend that projects with construction emissions below the threshold of 82 pounds per day should implement all feasible control measures recommended by the PCAPCD in order to reduce the project's contributions to cumulative air quality impacts and for the project to be consistent with the PCAPCDs air quality attainment plan. Minimization Measure AIR-1 implements this recommendation. In addition, Minimization Measures AIR-2 and AIR-3 implement TRPA recommendations and Caltrans requirements, respectively.

Impact AIR-2: Generation of Operation-Related Emissions of Ozone Precursors (Reactive Organic Gases and Oxides of Nitrogen), Carbon Monoxide, and Particulate Matter in Excess of Placer County Air Pollution Control District Standards

Alternative 1

Under Alternative 1, on-road emissions of ROG, NO_x, and CO would decrease in the future as compared to existing conditions (Table 3.1-5). This is because modeling using the ARB's EMFAC2002 emission rate program indicates the increase in vehicle miles traveled is outweighed by the decrease in emissions resulting from improvements in engine emission control technology. Emissions of PM10 and PM2.5 would increase

Table 3.1-5. Modeled Motor Vehicle Emissions

Roadway	From	To	Existing Year (2002) (Pounds Per Day)					Alternative 2 (2028) (Pounds Per Day)				
			ROG	NO _x	CO	PM10	PM2.5	ROG	NO _x	CO	PM10	PM2.5
SR 28	Beach Street	SR 267	7.9	25.2	146.9	0.6	0.4	0.8	5.1	18.2	0.7	0.5
	SR 267	Secline Street	3.8	12.1	70.3	0.3	0.2	0.4	2.4	8.7	0.3	0.2
	Secline Street	Deer Street	6.4	20.3	118.0	0.5	0.3	0.6	4.4	15.7	0.6	0.5
	Deer Street	Bear Street	5.4	17.2	100.0	0.4	0.3	0.6	3.6	12.8	0.5	0.4
	Bear Street	Coon Street	6.1	19.4	112.8	0.4	0.3	0.7	4.1	14.7	0.6	0.4
	Coon Street	Fox Street	5.6	17.6	102.8	0.4	0.3	0.6	3.7	13.1	0.5	0.4
	Fox Street	Chipmunk Street	6.7	21.2	123.3	0.5	0.3	0.7	4.3	15.5	0.6	0.4
	Chipmunk Street	Beaver Street	3.5	11.1	64.4	0.3	0.2	0.4	2.3	8.1	0.3	0.2
Total:			45.4	143.9	838.5	3.3	2.3	4.9	30.0	106.7	4.0	3.0
			Alternative 3 (2028) (Pounds Per Day)					Alternative 4 (2028) (Pounds Per Day)				
			ROG	NO _x	CO	PM10	PM2.5	ROG	NO _x	CO	PM10	PM2.5
SR 28	Beach Street	SR 267	0.7	4.8	17.0	0.6	0.4	0.8	5.1	18.2	0.7	0.5
	SR 267	Secline Street	0.3	2.3	8.1	0.3	0.2	0.4	2.4	8.7	0.3	0.2
	Secline Street	Deer Street	0.5	3.8	13.6	0.5	0.3	0.6	4.4	15.7	0.6	0.5
	Deer Street	Bear Street	0.4	3.3	11.5	0.4	0.3	0.6	3.6	12.8	0.5	0.4
	Bear Street	Coon Street	0.5	3.7	13.0	0.4	0.3	0.7	4.1	14.7	0.6	0.4
	Coon Street	Fox Street	0.5	3.3	11.9	0.4	0.3	0.6	3.7	13.1	0.5	0.4
	Fox Street	Chipmunk Street	0.5	4.0	14.2	0.5	0.3	0.7	4.3	15.5	0.6	0.4
	Chipmunk Street	Beaver Street	0.3	2.1	7.4	0.3	0.2	0.4	2.3	8.1	0.3	0.2
Total:			3.7	27.3	96.8	3.3	2.3	4.9	30.0	106.7	4.0	3.0

slightly by 2028 as compared to existing emissions. However, those increases would be less than 1 pound per day and are considered to be negligible.

Alternatives 2, 3, and 4

Long-term air quality impacts are associated with motor vehicles operating on the roadway network, predominantly the SR 28 corridor. The EMFAC2002 model and traffic data provided by LSC Transportation Consultants, Inc. (2003) were used to estimate operation-related emissions of ozone precursors (ROG and NO_x), CO, and PM₁₀. As noted previously, the proposed action is not a traffic-generating project and would not result in any differences in traffic volumes throughout the action area between build and no-build conditions. The results of the vehicle emissions calculations for project operations are summarized in Table 3.1-5. As indicated, emissions for future-year conditions would be well below the PCAPCD's thresholds for all alternatives.

Impact AIR-3: Nonconformance with State Implementation Plan

Alternative 1

Since Alternative 1 represents the no-build condition, a transportation conformity analysis would not be required for this alternative.

Alternatives 2, 3, and 4

The proposed action is included in the 2004 Lake Tahoe Basin RTP (Tahoe Regional Planning Agency and Tahoe Metropolitan Planning Organization 2004) and 2004 Federal TIP (Tahoe Metropolitan Planning Organization 2004) for the Lake Tahoe Region. The U.S. Department of Transportation and the EPA developed guidance for determining conformity of transportation plans, programs, and projects in November 1993 in the Transportation Conformity Rule (*40 CFR 51, 93*). The demonstration of conformity to the SIP is the responsibility of the metropolitan planning organization (in this case, the TRPA), as well as preparation of RTPs and associated conformity analysis.

Any project listed in an RTP must demonstrate conformity with the SIP. That RTP also includes a conformity analysis that demonstrates that the RTP meets federal air quality

requirements. TRPA has conducted air quality modeling that shows that emissions associated with the Lake Tahoe Basin 2004 RTP are within the allowable emission budgets for ozone precursors and in conformity with the SIP. Because the proposed action is listed in the RTP and the RTP has been demonstrated to be a conforming plan, the proposed action is a conforming project for ozone precursors.

Impact AIR-4: Generation of Carbon Monoxide Hotspot Emissions in Excess of the Federal or State Standards

Alternative 1

Table 3.1-6 indicates that CO concentrations resulting from Alternative 1 would not exceed the federal or state 1- and 8-hour standards.

Alternatives 2, 3, and 4

Increases of CO concentrations at locations near congested intersections affected by the proposed action were modeled with the CALINE4 dispersion model. The modeling was performed at the intersections of SR 28/SR 267, SR 28/Secline Street, SR 28/Deer Street, SR 28/Bear Street, SR 28/Coon Street, SR 28/Fox Street, and SR 28/Chipmunk Street using the highest winter peak hour traffic data. The conditions modeled were existing 2008 with project and 2028 with project. It should be noted that the existing conditions had the highest modeled concentrations; emissions under future conditions are anticipated to be lower because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles. Modeled CO concentrations plus background CO levels from the nearest monitoring station are presented in Table 3.1-6. As shown, emissions of CO hotspots are not anticipated to exceed the federal or state 1- and 8-hour standards.

Impact AIR-5: Exposure of Sensitive Receptors to Elevated Levels of Diesel Exhaust and an Increased Health Risk

Alternative 1

Under Alternative 1, no construction or associated emissions would occur.

Table 3.1-6. Carbon Monoxide Modeling Concentrations Results

Intersection	Existing Conditions (Parts Per Million)		Alternative 2 (Parts Per Million)				Alternative 3 (Parts Per Million)				Alternative 4 (Parts Per Million)			
	1 Hr.	8 Hrs.	2008		2028		2008		2028		2008		2028	
			1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.
1A	2.9	1.7	2.3	1.3	1.4	0.8	2.3	1.3	1.5	0.8	2.3	1.3	1.4	0.8
1B	2.5	1.4	2.1	1.2	1.4	0.8	2.1	1.2	1.5	0.8	2.1	1.2	1.4	0.8
1C	2.8	1.6	2.2	1.3	1.4	0.8	2.2	1.3	1.5	0.8	2.2	1.3	1.4	0.8
2A	3.0	1.7	2.4	1.4	1.4	0.8	2.4	1.4	1.4	0.8	2.4	1.4	1.4	0.8
2B	2.9	1.7	2.3	1.3	1.4	0.8	2.3	1.3	1.4	0.8	2.3	1.3	1.4	0.8
2C	2.9	1.7	2.4	1.4	1.4	0.8	2.4	1.4	1.4	0.8	2.4	1.4	1.4	0.8
2D	2.8	1.6	2.3	1.3	1.4	0.8	2.3	1.3	1.4	0.8	2.3	1.3	1.4	0.8
3A	3.1	1.8	2.5	1.4	1.5	0.8	2.5	1.4	1.5	0.8	2.5	1.4	1.5	0.8
3B	2.7	1.6	2.3	1.3	1.4	0.8	2.2	1.3	1.4	0.8	2.3	1.3	1.4	0.8
3C	3.1	1.8	2.6	1.5	1.5	0.8	2.5	1.4	1.5	0.8	2.6	1.5	1.5	0.8
3D	2.5	1.4	2.1	1.2	1.4	0.8	2.0	1.1	1.4	0.8	2.1	1.2	1.4	0.8
4A	2.5	1.4	1.8	1.0	1.3	0.7	1.8	1.0	1.3	0.7	1.8	1.0	1.3	0.7
4B	3.8	2.2	2.5	1.4	1.5	0.8	2.4	1.4	1.5	0.8	2.5	1.4	1.5	0.8
4C	2.8	1.6	2.1	1.2	1.4	0.8	2.0	1.1	1.4	0.8	2.1	1.2	1.4	0.8
4D	3.3	1.9	2.3	1.3	1.4	0.8	2.2	1.3	1.4	0.8	2.3	1.3	1.4	0.8
5A	2.1	1.2	2.1	1.2	1.4	0.8	2.1	1.2	1.4	0.8	2.1	1.2	1.4	0.8
5B	2.1	1.2	2.1	1.2	1.4	0.8	2.2	1.3	1.4	0.8	2.1	1.2	1.4	0.8
5C	2.2	1.3	2.2	1.3	1.4	0.8	2.3	1.3	1.4	0.8	2.2	1.3	1.4	0.8
5D	1.8	1.0	1.8	1.0	1.4	0.8	1.9	1.1	1.3	0.7	1.8	1.0	1.4	0.8
5E	1.9	1.1	1.9	1.1	1.4	0.8	2.0	1.1	1.4	0.8	1.9	1.1	1.4	0.8
6A	2.0	1.1	2.0	1.1	1.4	0.8	2.2	1.3	1.4	0.8	2.0	1.1	1.4	0.8
6B	2.1	1.2	2.1	1.2	1.4	0.8	2.3	1.3	1.4	0.8	2.1	1.2	1.4	0.8
6C	2.3	1.3	2.3	1.3	1.4	0.8	2.5	1.4	1.4	0.8	2.3	1.3	1.4	0.8
6D	1.9	1.1	1.9	1.1	1.4	0.8	2.0	1.1	1.4	0.8	1.9	1.1	1.4	0.8
6E	2.4	1.4	2.4	1.4	1.5	0.8	2.6	1.5	1.5	0.8	2.4	1.4	1.5	0.8
7A	2.1	1.2	2.1	1.2	1.4	0.8	2.2	1.3	1.4	0.8	2.1	1.2	1.4	0.8
7B	2.1	1.2	2.1	1.2	1.4	0.8	2.2	1.3	1.4	0.8	2.1	1.2	1.4	0.8
7C	2.0	1.1	2.0	1.1	1.4	0.8	2.1	1.2	1.4	0.8	2.0	1.1	1.4	0.8

Table 3.1-6. Continued.

Intersection	Existing Conditions (Parts Per Million)		Alternative 2 (Parts Per Million)				Alternative 3 (Parts Per Million)				Alternative 4 (Parts Per Million)			
	1 Hr.	8 Hrs.	2008		2028		2008		2028		2008		2028	
			1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.
A1	2.2	1.3	1.9	1.1	1.3	0.7	1.9	1.1	1.4	0.8	1.9	1.1	1.3	0.7
B1	2.0	1.1	1.7	1.0	1.3	0.7	1.7	1.0	1.4	0.8	1.7	1.0	1.3	0.7
B2	1.9	1.1	1.7	1.0	1.2	0.7	1.7	1.0	1.3	0.7	1.7	1.0	1.2	0.7
B3	2.3	1.3	1.9	1.1	1.3	0.7	1.9	1.1	1.3	0.7	1.9	1.1	1.3	0.7
C1	2.9	1.7	2.3	1.3	1.4	0.8	2.3	1.3	1.4	0.8	2.3	1.3	1.4	0.8
C2	2.2	1.3	1.8	1.0	1.3	0.7	1.8	1.0	1.3	0.7	1.8	1.0	1.2	0.7
C3	1.9	1.1	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7
C4	1.9	1.1	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7
C5	3.0	1.7	2.4	1.4	1.4	0.8	2.4	1.4	1.4	0.8	2.4	1.4	1.4	0.8
C6	3.6	2.1	2.8	1.6	1.5	0.8	2.8	1.6	1.5	0.8	2.8	1.6	1.5	0.8
C7	2.2	1.3	1.9	1.1	1.3	0.7	1.9	1.1	1.3	0.7	1.9	1.1	1.2	0.7
D1	2.4	1.4	2.0	1.1	1.4	0.8	2.0	1.1	1.4	0.8	2.0	1.1	1.4	0.8
D2	2.2	1.3	1.9	1.1	1.3	0.7	1.8	1.0	1.3	0.7	1.9	1.1	1.3	0.7
D3	2.4	1.4	2.0	1.1	1.4	0.8	1.9	1.1	1.4	0.8	2.0	1.1	1.3	0.7
D4	1.9	1.1	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7
E1	2.2	1.3	1.7	1.0	1.3	0.7	1.7	1.0	1.3	0.7	1.7	1.0	1.2	0.7
E2	2.0	1.1	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7
E3	2.2	1.3	1.7	1.0	1.3	0.7	1.7	1.0	1.3	0.7	1.7	1.0	1.3	0.7
E4	1.9	1.1	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7
F1	2.4	1.4	2.4	1.4	1.5	0.8	2.7	1.6	1.5	0.8	2.5	1.4	1.5	0.8
F2	1.6	0.9	1.6	0.9	1.2	0.7	1.7	1.0	1.2	0.7	1.6	0.9	1.2	0.7
F3	1.6	0.9	1.6	0.9	1.3	0.7	1.7	1.0	1.2	0.7	1.6	0.9	1.2	0.7
F4	1.5	0.8	1.5	0.8	1.2	0.7	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7
F5	1.5	0.8	1.5	0.8	1.2	0.7	1.6	0.9	1.2	0.7	1.5	0.8	1.2	0.7
F6	2.0	1.1	2.0	1.1	1.4	0.8	2.2	1.3	1.4	0.8	2.0	1.1	1.4	0.8
F7	2.1	1.2	2.1	1.2	1.4	0.8	2.3	1.3	1.4	0.8	2.1	1.2	1.4	0.8
F8	1.7	1.0	1.7	1.0	1.3	0.7	1.8	1.0	1.3	0.7	1.7	1.0	1.3	0.7
F9	1.5	0.8	1.5	0.8	1.2	0.7	1.6	0.9	1.2	0.7	1.5	0.8	1.2	0.7

Table 3.1-6. Continued.

Intersection	Existing Conditions (Parts Per Million)		Alternative 2 (Parts Per Million)				Alternative 3 (Parts Per Million)				Alternative 4 (Parts Per Million)			
			2008		2028		2008		2028		2008		2028	
	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.	1 Hr.	8 Hrs.
G1	2.2	1.3	2.2	1.3	1.4	0.8	2.3	1.3	1.4	0.8	2.2	1.3	1.4	0.8
G2	1.8	1.0	1.8	1.0	1.3	0.7	1.9	1.1	1.3	0.7	1.8	1.0	1.3	0.7
G3	1.6	0.9	1.6	0.9	1.2	0.7	1.7	1.0	1.2	0.7	1.6	0.9	1.2	0.7
G4	1.5	0.8	1.5	0.8	1.2	0.7	1.6	0.9	1.2	0.7	1.5	0.8	1.2	0.7
G5	1.6	0.9	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7
G6	2.2	1.3	2.2	1.3	1.4	0.8	2.4	1.4	1.4	0.8	2.2	1.3	1.4	0.8
G7	1.7	1.0	1.7	1.0	1.3	0.7	1.8	1.0	1.3	0.7	1.7	1.0	1.3	0.7
G8	1.5	0.8	1.5	0.8	1.2	0.7	1.6	0.9	1.2	0.7	1.5	0.8	1.2	0.7
G9	1.6	0.9	1.6	0.9	1.2	0.7	1.7	1.0	1.2	0.7	1.6	0.9	1.2	0.7
G10	1.7	1.0	1.7	1.0	1.3	0.7	1.8	1.0	1.3	0.7	1.7	1.0	1.3	0.7
G11	1.7	1.0	1.7	1.0	1.3	0.7	1.8	1.0	1.3	0.7	1.7	1.0	1.3	0.7
G12	1.5	0.8	1.5	0.8	1.2	0.7	1.6	0.9	1.2	0.7	1.5	0.8	1.2	0.7
H1	1.8	1.0	1.8	1.0	1.3	0.7	1.9	1.1	1.3	0.7	1.8	1.0	1.3	0.7
H2	1.8	1.0	1.8	1.0	1.4	0.8	1.9	1.1	1.4	0.8	1.9	1.1	1.4	0.8
H3	1.6	0.9	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7	1.6	0.9	1.2	0.7
H4	1.5	0.8	1.5	0.8	1.2	0.7	1.6	0.9	1.2	0.7	1.5	0.8	1.2	0.7
H5	1.6	0.9	1.6	0.9	1.3	0.7	1.6	0.9	1.3	0.7	1.6	0.9	1.3	0.7
H6	1.5	0.8	1.5	0.8	1.2	0.7	1.6	0.9	1.2	0.7	1.5	0.8	1.2	0.7

Note: Background concentrations of 1.2 and 0.7 parts per million (ppm) were added to the modeling 1- and 8-hour results, respectively. The federal 1- and 8-hour standards are 35 and 9 ppm, respectively. The state 1- and 8-hour standards are 20 and 6 ppm, respectively.

Alternatives 2, 3, and 4

Construction activities are anticipated to involve the operation of diesel-powered equipment for various activities. In October 2000, the ARB identified diesel exhaust as a TAC. It is anticipated that construction activities would occur over a 12-month period. An assessment of cancer health risks associated with exposure to diesel exhaust is typically for chronic exposure, in which a 70-year exposure period is often assumed. However, while cancer risks can result from exposure periods of less than 70 years, acute exposure periods to diesel exhaust (i.e., exposure periods of 2 to 3 years) are not anticipated to result in increased health risks because health risks are typically seen in exposures periods that are chronic in nature. Construction of the proposed action is not anticipated to result in an elevated cancer risk to exposed persons because construction activities will occur over a 1-year period and will not result in long-term emissions of diesel exhaust at the project site. In addition, implementation of Minimization Measure AIR-4 would further reduce diesel emissions from construction activities.

Guidance provided by the ARB indicates that elevated health risks from operational exposure to diesel exhaust is associated primarily with facilities that have substantial diesel exhaust emissions, including truck stops, warehouse/distribution centers, large retail or industrial facilities, high-volume transit centers, schools with high volumes of bus traffic, high-volume highways, and high-volume arterials/roadways. The proposed action does not fall under any of these land use types. In addition, project operations are not anticipated to result in increased health risks from exposure to diesel exhaust from vehicles because the proposed action would not increase the number of truck trips or truck traffic throughputs in the vicinity of the action area.

Impact AIR-6: Atmospheric Deposition of Phosphorus from Re-Entrained Roadway Fugitive Dust into Lake Tahoe

Alternative 1 (No Build) and Alternatives 2, 3, and 4

The deposition of phosphorus into Lake Tahoe is a concern for the lake ecosystem. A number of factors have been identified as contributors to poor water quality. Among them, it has been demonstrated that concentrations of phosphorus in Lake Tahoe are

closely related to its capacity to support algal populations (i.e., as concentrations of phosphorus in the lake increase, algal growth may increase if all other factors remain equal). This is a primary concern for Lake Tahoe because its clarity and visual quality are unique and renowned. Within the region, atmospheric deposition of phosphorus and particulate matter from re-entrained fugitive dust into Lake Tahoe is a concern. Because of heavy winter sanding operations for snow control in the area, the roadway surfaces in the area contain higher levels of sand and gravel than other areas. This can result in higher levels of localized re-entrained fugitive dust as vehicles travel over the roadways and break the sand and gravel into ever smaller dust that is sufficient for aerial transport. This dust can be re-entrained into the air from wind blowing over the roadways and vehicles traveling over the roadways.

It is not anticipated that proposed action would result in an increased contribution to the atmospheric deposition of phosphorus in Lake Tahoe from re-entrained fugitive dust. The physical features associated with the proposed action would reduce the total area of roadway, which would reduce the amount of sand required for snow control in winter. This would in turn reduce the amount of re-entrained fugitive dust in the immediate project vicinity. In addition, the narrowing of the roadways and installation of roundabouts would reduce speeds during peak hours on SR 28, which would reduce the amount of re-entrained roadway dust in the action area because lower amounts of re-entrained roadway dust are associated with lower speeds. Overall, the proposed action would not increase the amount of re-entrained fugitive dust and consequently would not contribute to the atmospheric deposition of phosphorus and particulate matter in Lake Tahoe.

Impact AIR-7: Generation of Significant Levels of Odors

Alternative 1

Under Alternative 1, no construction or associated emissions would occur, so potential odors from construction equipment and volatile organic compounds from construction

activities (i.e., paving) would not occur. Operation of the proposed action is not anticipated to generate any objectionable odors that affect a substantial number of people.

Alternatives 2, 3, and 4

Diesel emissions from construction equipment and volatile organic compounds from paving activities may create off-site odors during construction. These odors would be temporary and localized, and they would cease once construction activities have been completed. Operation of the proposed action is not anticipated to generate any objectionable odors that affect a substantial number of people.

Impact AIR-8: No Generation of Significant Levels of MSAT Emissions

Alternatives 1, 2, 3, and 4

The area of air toxics analysis is a new and emerging issue and is a continuing area of research. Currently, there are limited tools and techniques available for assessing project-specific health impacts from MSATs, as there are no established criteria for determining when MSAT emissions should be considered a significant issue in the NEPA context.

To comply with Council on Environmental Quality regulations (*40 CFR 1502.22(b)*) regarding incomplete or unavailable information, the MSAT methodology discussion above contains discussion regarding how air toxics analysis is an emerging field and current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that would result from a transportation project in a way that would be useful to decision-makers. Also in compliance with *40 CFR 150.22(b)*, the MSAT methodology discussion above contains a summary of current studies regarding the health impacts of MSATs.

Based on the FHWA's interim guidance for MSATs, the proposed project meets the criteria for a qualitative project-level MSAT analysis because it is not an exempt project or a project with no meaningful potential MSAT effects, and AADT is not projected to be in the range of 140,000 to 150,000 by the project design year (Federal Highway

Administration 2006). When conducting a qualitative analysis, following factors should be considered.

- For projects on an existing alignment, MSATs are expected to decline unless VMT more than doubles by 2020 (due to the effect of new EPA engine and fuel standards).
- Projects that result in increased travel speeds will reduce emissions of the VOC-based MSATs (acetaldehyde, benzene, formaldehyde, acrolein, and 1,3-Butadiene); the effect of speed changes on diesel particulate matter is unknown. This speed benefit may be offset somewhat by increased VMT if the more efficient facility attracts additional vehicle trips.
- Projects that facilitate new development may generate additional MSAT emissions from new trips, truck deliveries, and parked vehicles (due to evaporative emissions). However, these may also be activities that are attracted from elsewhere in the metro region (thus, on a regional scale there may be no net change in emissions).
- Projects that create new travel lanes, relocate lanes or relocate economic activity closer to homes, schools, businesses, and other sensitive receptors may increase concentrations of MSATs at those locations relative to No Action.

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project. However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the project level, it is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions—if any—from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA, titled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project*

Alternatives. (That study can be found at

<<http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm>>.)

For each alternative in this EA/EIR/EIS, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. These increases in VMT would lead to higher MSAT emissions for the action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each of the Alternatives would be the same, as the proposed action is not a traffic-generating project and would not result in differences in traffic volumes throughout the action area between build and no-build conditions, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

3.1.4 Mitigation, Avoidance, Minimization, and Compensation Measures

In accordance with the Chapter 93 Traffic and Air Quality Mitigation Program, the TRPA Code of Ordinances (Tahoe Regional Planning Agency 2004a), traffic (LSC Transportation Consultants, Inc. 2003) and air quality (Appendix C) analyses were conducted for the proposed action. The implementation of Minimization Measures AIR-1 through AIR-3 would minimize effects associated with Alternatives 2, 3, and 4.

Minimization Measure AIR-1: Implement All Applicable PCAPCD Best-Available Mitigation Measures

Placer County Department of Public Works (DPW) will implement all feasible and applicable fugitive dust mitigation measures from the PCAPCD's best-available mitigation measures, which are summarized below.

- Placer County DPW will require the construction contractor to submit to the PCAPCD and receive approval of a construction emission/dust control plan prior to groundbreaking. This plan must address the minimum Administrative Requirements found in section 300 and 400 of District Rule 228, Fugitive Dust (www.placer.ca.gov/airpollution/airpolut.htm).
- Placer County DPW will require the construction contractor to have a preconstruction meeting for grading activities for 20 or more acres to discuss the construction emission/dust control plan with employees and/or contractors and the District is to be invited.
- Placer County DPW will require the construction contractor to suspend all grading operations when fugitive dusts exceed District Rule 228 Fugitive Dust limitations.
- It is to be noted that fugitive dust is not to exceed 40% opacity and not go beyond property boundary at any time. If lime or other drying agents are utilized to dry out wet grading areas, they will be controlled so as to not to exceed District Rule 228 (fugitive dust limitations).

- Construction equipment exhaust emissions will not exceed District Rule 202, visible emission limitations. Operators of vehicles and equipment found to exceed opacity limits are to be immediately notified, and the equipment must be repaired within 72 hours.
- Apply water to control dust as needed to prevent dust impacts off-site. Operational water truck(s), will be on-site, as required, to control fugitive dust. Construction vehicles leaving the site will be cleaned to prevent dust, silt, mud, and dirt from being released or tracked off-site.
- Apply approved chemical soil stabilizers, vegetative mats, or other appropriate BMPs to manufacturers' specifications to all-inactive construction areas (previously graded areas that remain inactive for 96 hours).
- Spread soil binders on unpaved roads and employee/equipment parking areas and wet broom or wash streets if silt is carried over to adjacent public thoroughfares.
- Install wheel washers or wash all trucks and equipment leaving the site.

Minimization Measure AIR-2: Implement All Applicable TRPA Best Management Practices

Placer County DPW will implement all feasible and applicable BMPs required by TRPA. Guidance is available from TRPA Best Management Practices Retrofit Program, TRPA Erosion Control Team's general information, and BMP Contractors Notes. (Tahoe Regional Planning Agency 2005.) This includes a limitation that all construction-related vehicles will idle for no more than 5 minutes.

Minimization Measure AIR-3: Implement Caltrans Standard Specification 7-1.01F and Standard Specification 10

Placer County DPW will follow Caltrans Standard Specification 7-1.01F and Standard Specification 10, which address the following of local air pollution control district rules and dust control, respectively.

Minimization Measure AIR-4: Implement Construction Emissions Control Technology

Placer County DPW will provide a construction work plan to the PCAPCD demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent ARB fleet average at time of construction. Control measures to available to achieve emissions reductions include, but are not limited to use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology (e.g., diesel particulate matter filters and lean-NO_x or diesel oxidation catalysts) after-treatment products, and/or other options as they become available.

3.1.5 Compliance with Tahoe Regional Planning Agency Code

TRPA has designated an air quality significance threshold of 0.08 ppm over 1-hour for ozone, which is slightly more stringent than the CAAQS for ozone of 0.09 ppm for 1 hour. The PCAPCD's thresholds are based on the emissions offset thresholds that apply to new or modified stationary emission sources under PCAPCD Rule 502. Rule 502, in turn, conforms with the "no net increase" policy adopted by the California Clean Air Act (*Health & Safety Code § 40919*), which requires offsets for permitting of new or modified sources having the potential to emit 15 tons or more per year of any nonattainment pollutant or its precursors in a district. Because the PCAPCD's thresholds were implemented to ensure that the CAAQS are met, they are an appropriate proxy in determining if the proposed action is in compliance with TRPA standards. As indicated in Tables 3.1-4 and 3.1-5, construction and operational emissions are expected to be well below threshold values. Consequently, it is determined that the proposed action complies with TRPA code.

Modeled CO concentrations associated with implementation of the alternatives are presented in Table 3.1-6. The modeled CO emissions presented in Table 3.1-6 indicate that emissions of CO hotspots are anticipated to comply with TRPA code.

3.2 Cultural Resources

This section considers the effects of the proposed action on significant cultural resources located within the action area. Cultural resources in this analysis comprise prehistoric and historic archaeological resources, locations important to Native Americans, and historic architectural resources. The analysis describes the environmental consequences, regulatory setting, and mitigation measures that would reduce effects resulting from the proposed action or alternatives.

The key sources of data and information used in the preparation of this section are listed below:

- Field surveys,
- A detailed records search,
- Input from Native American tribes and historical organizations, and
- A review of historical literature and previous reports.

A detailed cultural resources analysis supporting the findings in this section can be found in the cultural resources technical report, included as Appendix D to this document.

3.2.1 Affected Environment

The Basin, including Kings Beach, is sensitive for archaeological and historic cultural resources, as well as Native American resources. The prehistoric and historic settings of the action area are discussed below.

A number of cultural resource management reports have presented the cultural setting of the North Lake Tahoe and Kings Beach area. These include, most notably, Reno and Zeier (2003), from which the following setting is derived. This work is supplemented by reference to additional contextual descriptions by Lindström (1991) and Lindström and Waechter (1996).

3.2.1.1 Prehistoric Overview

Summaries of western Great Basin and eastern Sierra Nevada prehistory are found in Pendleton et al. (1982) and Elston (1982, 1986). These interpretations employ the concept of adaptive strategies—the combination of technological, subsistence, settlement, and ideological elements—to describe how prehistoric people interacted with their environment. Four strategies are recognized for the western Great Basin and eastern Sierra: the Pre-Archaic (prior to 7,000 years before present [B.P.]), the Early Archaic (7,000–4,000 years B.P.), the Middle Archaic (4,000–1,500 years B.P.), and the Late Archaic (1,500 years B.P. to Euroamerican contact).

The Pre-Archaic strategy prevailed from about 11,500 to 7,000 years B.P. This was a time of cool, moist conditions in which human subsistence focused on lakeshore and marsh resources and the taking of large game. Population densities were low and groups were highly mobile.

Pre-Archaic sites have been identified along the Truckee River, and Early Archaic sites have been recorded near Spooner Lake and in other locations within the Basin. Lindström (1990) suggests that during Pre-Archaic and Early Archaic times the level of Lake Tahoe may have been considerably lower than at present. If this was the case, Pre-Archaic and Early Archaic sites would have been submerged as the lake level rose to its eventual, modern level.

Environmental conditions again changed about 4,000 years B.P., marking the onset of the Middle Archaic. Increases in effective precipitation caused the expansion of lake and marsh resources. Lake Tahoe presumably returned to its present level at that time. Prehistoric population increased, and pronounced cultural elaboration occurred, as shown by an abundance of textiles and other perishables and more elaborate house structures. Subsistence practices continued to emphasize large game hunting, but the use of seed and upland resources increased notably. The local Basin manifestation of the Middle Archaic adaptive strategy is termed the Martis Complex.

The transition from the Middle to the Late Archaic saw further changes in technology, subsistence patterns, and settlement. The bow and arrow were introduced in the Late Archaic, along with a greater diversity of ground stone implements and an emphasis on the use of small flake tools. Local and regional populations increased, prompting an intensification and diversification in subsistence practices. The use of pinyon became pronounced during this period. The Kings Beach Complex, which apparently represents populations ancestral to the present day Washoe, is the local manifestation of this adaptive strategy and has been identified west of the action area along the beach.

3.2.1.2 Washoe Overview

Ethnographic data on the Washoe are contained in d'Azevedo (1956, 1963, 1986); Barret (1917); Dangberg (1968); Downs (1966); S. and R. Freed (1963); Lowie (1939); Nevers (1976); Price (1962, 1980); and Siskin (1941). At the time of Euroamerican arrival, the Basin was inhabited by the Washoe, a Hokan-speaking hunting and gathering group. Washoe territory covered the chain of valleys along the eastern slope of the Sierra Nevada from Honey Lake to Antelope Valley. The Pine Nut Mountains and the Virginia Range formed the eastern boundary; the western boundary was just west of the Sierra Nevada crest. Lake Tahoe was, and remains, the geographic and social center of the Washoe world, and places within the Basin maintain their legendary and mythological associations.

Washoe subsistence was marked by seasonally shifting resource exploitation. With the coming of spring, small bands or individual families left their winter villages to take advantage of ripening plant foods. As soon as travel became possible, young people began leaving winter villages for Lake Tahoe. Whitefish and early plants sustained these first arrivals. If it had been a particularly difficult winter, the young would return to the winter villages with fish taken from the lake and its tributaries. Others left the winter villages as spring progressed and made their way to the lake, where most of the tribe was encamped by early June. From these lakeside base camps, the Washoe took trout, sucker, and whitefish that spawned in the streams, accumulating stores of dried fish for later use.

Tributary streams, such as Griff Creek, were important fisheries for the Washoe (Lindström 1993). One temporary camp, *gumE'phEl wO'tha*, is noted in the ethnographic record at the mouth of Griff Creek just south of the action area. The level of modern disturbance does not preclude the possibility that remains of camps may be found beneath the urban development of the action area. A Washoe trail, including its intersection with another trail northward to Martis Valley, roughly predicted the modern alignments of SR 28 and SR 267 (Lake Tahoe Basin Management Unit 1998:5).

The Washoe left the lake in late summer and early fall to disperse in small groups to the valleys east of the Sierra. Antelope and rabbit were hunted both by individuals and in communal drives. The Washoe collected pine nuts along the eastern face of the Sierra and in the Pine Nut Mountains, with deer hunting serving as an important ancillary activity in these locations. They returned to their favored winter base camps with the coming of heavy winter storms, sustained by stored pine nuts, seeds, and dried meat.

The post-1850s arrival of Euroamericans radically changed Washoe use of the Basin. The Washoe resource base was greatly affected by the development of transportation corridors, logging, recreation, and commercial fishing. Traditional lifeways changed, and with the demise of their traditional food sources, the Washoe became increasingly dependent on the Euroamerican social and economic structure.

3.2.1.3 Historic Overview

Early Settlement

Early emigrant trails did not enter the action area, but passed around the southern end of Lake Tahoe, then over Donner Summit to the north. The major wagon supply route from California to the Comstock Lode also passed to the south. However, a less popular route did pass through the action area for a short time: Scott's Route (Placer County Emigrant Road) passed along the north shore of Lake Tahoe from 1852 to 1855 (Lindström 1993).

In 1869, George Schaffer and William Campbell built the Truckee-Brockway Road, or Brockway Cutoff. This road passed through the study area. In 1874, a linking road was

constructed along the north shore of Lake Tahoe. This road was an improvement of the old Scott Route and closely approximated the route of current day SR 28 (Goodwin 1971:12).

The tiny settlement of Pine Grove Station was located at the intersection of the road along the north shore and the Truckee-Brockway Road. Throughout the late nineteenth and early twentieth century, people passed through this area on their way to other destinations, particularly the hot springs resort at Brockway. During the early 1920s, settlement in the study area was sufficiently sparse that it did not warrant note or a place name on maps (U.S. Coast and Geodetic Survey 1923; U.S. Forest Service 1926). This was the end of a long period of economic stagnation for the Basin, following the demise of industrial-scale logging operations.

Subdivision and Commercial Development

Sometime between 1923 and 1925, Joe King, after whom Kings Beach is named, began obtaining control of the commercial core of Kings Beach from Robert P. Sherman, who, along with Harry O. Comstock, controlled interests in land throughout what is now Tahoe Vista, Kings Beach, and Brockway. Sherman constructed the Buckhorn Inn, the first modern commercial building in Kings Beach, which continued to be used into the 1950s.

During the 1920s, some of the earliest subdivisions in the Basin were established along the north shore of the lake; much of the infrastructural layout of Kings Beach and adjacent Tahoe Vista dates from this period. Individual subdivisions, characterized by restrictive covenants, conditions, and restrictions, included Cala-Neva, established in 1914; Wood Vista or Woodmere, established in 1924; Brockway Vista, established in 1924 (which includes most of the action area); and Brockway Vista Addition, established in 1926 (Lindström and Waechter 1996:59). Lots were small—“slices” 25 feet wide—because they were intended primarily as seasonal automobile campsites. These and other developments gradually merged to make a nearly unbroken, dispersed, residential pattern from Tahoe Vista through Kings Beach to Brockway. By 1940 the modern quadrangular

road system, defined by subdivisions begun in the late 1920s, was well established in Kings Beach.

Beginning in the 1920s, a row of small businesses was established along SR 28. Catering to middle-class, automobile-based tourists these businesses were constructed and leased out by the King family. This linear commercial corridor was surrounded by a seasonally occupied residential neighborhood that included single-family residences, multifamily residences, rental cabins, and motels. By this time, the forest was recovering from nineteenth century logging and many parcels were close to one of the finest sand beaches at Lake Tahoe, Kings Beach. An additional attraction was the Brockway golf course at Kings Beach's west end. The community became known as "Lake Tahoe's Coney Island."

At that time, the commercial core of town was strictly limited to the block between Coon and Bear Streets. Most buildings were on the south side of SR 28, including King's cottage complexes, the Buckhorn Inn, two restaurants, and a real estate office. Businesses on the north side of the route included a waffle shop, a store, and an automobile service station (Highway Department 1936).

Before the 1930s, the transportation system around the lake was severely affected by winter weather. However, after gambling was legalized on the Nevada side of the lake, roads began to be routinely cleared of snow as visitors flocked to the region to game and participate in winter sports. The resulting year-round income aided in the establishment and survival of small businesses at Kings Beach (Anonymous 1939).

By the late 1930s and early 1940s, the commercial part of town developed on the south side of the highway (just east of Bear Street) and included a large mercantile store, a drug store, a movie house, and a modern style Chevron station. The eastern third of the block west of Bear Street on the northern side of the highway included a café, a photo studio, and a traditional-design service station. This marked the western extent of the commercial district, except for a small barbecue stand near Deer Street (Hayden 1939).

The commercial district expanded eastward to Chipmunk Street and included a bakery, motels, and possibly a theatre. A fire station was also built near the intersection of North Lake Boulevard with the Brockway Grade (SR 267).

Postwar Expansion, 1946–1960

Throughout the Basin, little new development occurred during World War II (Jackson and Pisani 1973). However, in the postwar period, several new motels, many of them two stories, were built along North Lake Boulevard (Pacific Telephone and Telegraph Co. 1952). These supplemented, but did not replace, the many resort cottages present in Kings Beach. A newer and more transient tourist was being catered to, often staying for a night or a weekend rather than for a week or a month. As before, other businesses directly or indirectly supported tourism. They included boat rentals, markets, bakeries, automobile services stations, bars, beauty salons, theatres, and restaurants. Presiding over the center of the community was the new two-story brick post office building.

Between 1953 and 1960 the growth of the commercial corridor through Kings Beach stabilized, while residential growth continued to fill in most of the surrounding subdivision parcels. The urban corridor was more impressive than it is today, with an almost continuous row of businesses from Secline Street all the way to Chipmunk Street (California State Automobile Association 1956; Pacific Telephone and Telegraph Co. 1953, 1954, 1955, 1956). This streetscape was altered in the 1970s when land on the lakeside of the street was acquired to create the King's Beach State Recreation Area. This resulted in the removal of a number of buildings on that side of the street.

Modern Developments, 1961–Present

The onset of modern development at Kings Beach was sparked by selection of nearby Squaw Valley as the location for the 1960 winter Olympic games. Rather than small resorts, the community constructed large resorts for patrons of the games. Many buildings present in the community today were constructed or remodeled to support the crowds attending the games.

Architecture

Use of the Basin as a tourist destination and place for seasonal residences resulted in buildings ranging from large casinos and hotels to tiny rustic cabins. Regardless of the scale, the primacy of nature runs through much of the literature on Tahoe architecture. According to many accounts, there is a distinct *Lake Tahoe Style* of architecture.

Outstanding high-style examples at the lake by architects such as Bernard Maybeck, Gordon Kaufmann, and Frederick DeLongchamps are Fleischmann's estate and Whittell's Thunderbird Lodge with their emulation of northern European vernacular and British Arts and Crafts design elements, the Knight's Vikingsholm estate with its emulation of Scandinavian design, and the Ehrman estate with echoes of both the British Arts and Crafts and Chateau traditions (James and James 2002; Marvin et al. 2003; Reno 2004).

Large homes built at Lake Tahoe during the early years of the twentieth century embodied the Rustic style. Examples listed on the National Register of Historic Places (NRHP) are the Hellman/Ehrman Estate (1894), the Heller Estate (1924), and the home of "Lucky" Baldwin's daughter, Dextra (1923–1924), at Tallac. The Hellman/Ehrman Estate, built on the site of the former Bellevue luxury hotel, was the summer home of wealthy San Francisco financier Isaias W. Hellman. Although it was a sumptuous home and was not constructed of log, the huge posts supporting the long porch were unpeeled (bark-clad) logs with set-in unpeeled log shoulders. Other structures on the property have more rustic qualities than the main house. Also on the property is the Phipps log cabin, the home of the first settler to the area, who homesteaded in 1872 (Welts n.d.).

The three estates at Tallac (the Pope, Heller, and Baldwin Estates) are also characterized by degrees of rusticity, from sophisticated rustication to romanticized bark and log structures. Again, on the main houses large posts supporting porches are typically peeled or unpeeled logs. Dextra Baldwin used half logs for her home and full log construction for her guest cabins. The other estates employed log construction mainly for outbuildings. The boathouse on the Heller Estate is cedar bark laid up vertically, while

the “Honeymoon cottage” on the Pope Estate is made of logs, with curvilinear branches decoratively filling the gables over the porch. The latter structure, especially, epitomizes the romance of log construction (Boghossian et al. n.d.).

The famous Nevada architect, Frederick DeLongchamps, designed several homes at Lake Tahoe in the Rustic style, including one for Senator (former Governor) Tasker Oddie in 1932 that had many of the same features as those found in Zephyr Cove and at Kings Beach. They included the use of unpeeled boards, grouped casement windows, and picture windows. In 1935, he designed a two-story home at Lake Tahoe for O. Alexander in the same style that featured cedar bark siding and a verandah with log railings.

In recent decades, architectural recording has been broadened from the high-styles mentioned above to vernacular expressions of the same general ideals. Nearly all of the rustic architecture of Kings Beach is decidedly vernacular, characterized by small scale and use of relatively inexpensive wood trim, such as siding shaped to look like logs, wood and bark shingles, and exposed rafters. True log construction is rare, as is the magnificent stonework often present in high-style examples. Natural finishes, such as oil, are preferred to paint. Gable, hip, and gambrel roofs tend to be moderate to steeply pitched, but can be low pitched on small buildings. Dormers are common. From this period, most Tahoe buildings do not exceed one-and-a-half stories and basements are rare. Similar simple expressions of rustic log and stone architecture are present in the Zephyr Cove Properties Historic District (P.S. Preservation Services 2001) and at Tahoe Meadows. Tahoe Meadows, an early vacation home subdivision in South Lake Tahoe, was subdivided in 1924 and incorporated in 1925, making it contemporary with the Brockway Vista subdivision at Kings Beach. The modest homes and cabins built in this subdivision were generally rustic, and often of log. Bernard Maybeck, one of California’s most famous architects, designed two of the cottages (Woodbridge n.d.).

The appropriateness and popularity of rustic architecture was and continues to be recognized at Lake Tahoe. The local Tahoe *Tattler* newspaper routinely carried articles about new construction in the 1930s that showed an overwhelming preference for this

style (e.g., August 30, 1935 pp. 1–2; August 26, 1938 pp. 1–4; August 18, 1939 pp. 1,4). The style was repeatedly called “Tahoe-type architecture” in these articles. It was not only the popular press but architects that recognized the distinctive regional character of resort rustic architecture at Lake Tahoe.

Well-preserved examples of a common style (such as Craftsman or Minimal Traditional) are not considered eligible for listing in the NRHP. To be eligible, a building must retain characteristics that make it an outstanding example of a particular form of rusticity that would be recognized locally as *Lake Tahoe Style*. Also required is a setting that is sufficiently intact that the building retains the somewhat ethereal qualities of feeling and association. For the purposes of this report and associated California Department of Parks and Recreation (DPR) 523 forms, the more widely inclusive term “Mountain Rustic” or simply “Rustic” is used to describe these various characteristics used to modify recognized architectural styles to fit into the local setting.

In most cases, buildings eligible for the NRHP or the California Register of Historical Resources (CRHR) are outstanding or particularly representative examples of the range of buildings that reflect the amorphous concept of Lake Tahoe Rustic architecture. In 1990 Alpengroup evaluated the status of many historic buildings in the Basin and made some observations pertinent to the later development of Kings Beach. These observations follow below.

The Basin is confined by the Lake and the mountains and therefore the options available for both public and private development is severely limited. Some of the best development sites in the Basin are the already built sites. Often a larger residence is built on the site of a smaller and older house. Much of the early twentieth century residential development was modest. Small cabins and cottages were built as vacation homes. These buildings are threatened with replacement as more houses become year round first and second homes and as the current size requirements of both are much higher now than they were forty, fifty, and sixty years ago.

Many of the people building in the Basin today are not from the Basin and have very little sense of the history of the area. Without knowledge of the area’s

history or an appreciation for what is appropriate to the historic areas, the architects, builders, developers, and owners are not designing and building sensitive and appropriate structures (Alpengroup 1990:37–38).

Other styles present in small numbers include International, Streamlined Moderne, and A-frames. Numerous permanently occupied travel trailers are present in several trailer parks. The most common residential style for the periods of significance is Minimal Traditional, often merging into Ranch Style (McAlester and McAlester 1990:478). A common resource type is the motel. Detached Row, Row-on-Row, L, and U configured cottage courts are present. One and two-story integrated motor courts are laid out in Row and L forms (Jakle 1996:37).

3.2.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

Criteria for determining cultural resource significance and project effects are based on National Historic Preservation Act of 1996, as amended, (NHPA), CEQA, and TRPA Code of Ordinances.

3.2.2.1 Federal Regulations

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include:

Section 106 of the National Historic Preservation Act

The NHPA sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA

involvement. The PA implements the Advisory Council's regulations, *36 CFR 800*, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (*23 CFR 773*) (July 1, 2007).

To determine whether an undertaking could affect NRHP-eligible properties, cultural resources within an Area of Potential Effects (APE) (including archaeological, historical, and architectural properties) must be inventoried and evaluated for listing in the NRHP. Although compliance with Section 106 is the responsibility of the lead federal agency, the work necessary to comply can be undertaken by others.

The Section 106 process entails six basic steps, which are listed below.

- Initiate consultation and public involvement.
- Identify and evaluate historic properties.
- Assess effects of the action on historic properties.
- If necessary, consult with the SHPO regarding significant impacts on historic properties, resulting in a Memorandum of Agreement (MOA).
- Submit the MOA to the Advisory Council on Historic Preservation (ACHP).
- Proceed in accordance with the MOA.

Federal Historic Significance Criteria

For federal projects, cultural resource significance is evaluated in terms of eligibility for listing in the NRHP. NRHP criteria for eligibility are defined below.

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that

- are associated with events that have made a contribution to the broad pattern of our history;
- are associated with the lives of people significant in our past;
- embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- have yielded, or are likely to yield, information important in prehistory or history (36 CFR 60.4).

FHWA Compliance with Section 106 under Programmatic Agreement

In January 2004, FHWA entered into a programmatic agreement with the ACHP, SHPO, and Caltrans to streamline the Section 106 process, which resulted in the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (Appendix E).

This PA essentially allows Caltrans Professionally Qualified Staff (PQS) to ensure the Federal-Aid Highway Program (Program) is carried out in accordance with stipulations set forth in the PA to take into account the effects of the Program on historic properties in California. The stipulations in the PA govern compliance of the Program with Section 106 of the NHPA. A major stipulation included in the PA, Stipulation VII, outlines classes of undertakings, called *Screened Undertakings*, that may be exempt from Section 106 review. Screened Undertakings are those that have the potential to affect historic properties, but following appropriate screening as described in Attachment 2 of the PA, may be determined to be exempt from further review or consultation under the PA.

Section VII, Attachment 2 of the PA applies to water features, curbs, and gutters added to the current project after Section 106 was completed on the original project.

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties.

3.2.2.2 State Regulations

CEQA and Cultural Resources

Historical resources are considered under the CEQA, as well as *Public Resources Code (PRC) Section 5024.1*, which established the CRHR. *PRC Section 5024* requires state agencies to identify and protect state-owned resources that meet NRHP listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way.

Historical resource is a CEQA term that includes buildings, sites, structures, objects, or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance and is eligible for listing or is listed in the CRHR.

According to the CEQA Guidelines (Section 15064.5 [a]), a resource can qualify as a *significant historical resource* if it meets any of the following criteria.

- It is listed in or determined eligible for listing in the CRHR.
- It is included in a local register of historical resources, as defined in *Section 5020.1[k] of the PRC*, or identified as significant in a historical resource survey that meets the requirements of *Section 5024.1[g] of the PRC*, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- The lead agency determines it is significant as supported by substantial evidence in light of the whole record.

California Register of Historical Resources

Sections 5024(f) and 5024.5 of the PRC require state agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks. The CRHR was created by the California State Legislature in 1992 and is intended to serve as an authoritative listing of historical and archaeological resources in California. For a historical resource to be eligible for listing in the CRHR, it must be significant at the local, state, or national level under one or more of the following criteria from *CEQA Guidelines Section 15064.5(a)(3), Subsections (A)–(D)*.

- It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- It is associated with the lives of persons important in our past.
- It embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values.
- It has yielded, or may be likely to yield, information important in prehistory or history.

Historical resources automatically listed in the CRHR include those historic properties listed in, or formally determined to be eligible for listing in, the NRHP (*PRC 5024.1*).

TRPA Guidelines/Thresholds

TRPA Guidelines

The TRPA Initial Environmental Checklist (IEC) identifies issues that may be deemed significant pursuant to TRPA Code. These issues include alteration of a significant archaeological or historic site; significant impacts on a prehistoric site or historic building, structure, or object; physical changes that would affect unique cultural ethnic

values; or restriction of historic or prehistoric religious or sacred uses within the impacted area.

TRPA Code/Threshold

Identification and preservation of culturally and historically significant sites within Basin is an important goal in TRPA's Regional Plan (Tahoe Regional Planning Agency 2004b). Other sections provide protection of historic resources discovered during construction activities.

Additional Cultural Resource Guidelines

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, *State Health and Safety Code Section 7050.5* states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to *PRC 5097.98*, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the Placer County DPW so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of *PRC 5097.98* are to be followed as applicable.

3.2.3 Environmental Consequences (Including Permanent, Temporary, Direct, and Indirect)

3.2.3.1 Approach and Methodology

Kings Beach Cultural Resources Identification

The action's APE encompasses the construction footprint of the four proposed build alternatives, and for the historic built environment includes those parcels adjacent to the proposed action alignment wherein possible ROW acquisition will be necessary. The

APE boundaries were determined through agreement between Placer County, Caltrans, and the TRPA; this APE has evolved during the project planning process.

Archaeological and architectural surveys completed for the most recent 2005 APE resulted in the preparation of three cultural resource documents (Appendix D). The Historic Property Survey Report (HPSR) is the primary compliance document for the Section 106 process used in FHWA and Caltrans reviews since the Section 106 Programmatic Agreement (Section 106 PA) took effect in 2004. The Archaeological Survey Report (ASR) is used for the inventory and evaluation of archaeological resources and the Historical Resources Evaluation Report (HRER) is used for historical built environment inventory and evaluation.

Additional project elements consisting of water features, curbs, and gutters were added to the project in 2007. These additions resulted in minor changes to the APE. Caltrans PQS examined the new features, curbs, and gutters according to the guidelines set forth in the PA and determined that the recent project additions have no potential to affect historic properties and are exempt from further review pursuant to Stipulation VII and Attachment 2, Screened Undertakings, (Class 2, 8, 11) of the PA (Appendix E).

The investigation for the action included a records search, consultation, field surveys, and additional research. The result of this investigation is described below and further information is provided in Appendix D.

Records Search

A literature and records search for the action area was conducted in 2001 and updated in 2005 at the North Central Information Center of the California Historical Resources Information System (CHRIS). The 2001 records search indicated one previously recorded prehistoric site, CA-PLA-9, an extensive lithic scatter was located along the beach south and west of the action area, and several historic roads and site locations were noted on the 1865 and 1875 General Land Office (GLO) maps. The 2005 search identified a historic stone walkway (KBP1) and two historic building complexes (Map Reference #15 and #16). None of these properties are considered eligible for the NRHP,

or as historic resources per CEQA or the TRPA. Moreover, this search identified no properties or districts listed in the NRHP (2005), the CRHR (California Register of Historical Resources 2005), the California Inventory of Historic Resources (1976), the California State Historic Landmarks (1996), the California Points of Historical Interest (1992), and the Caltrans Bridge Inventory (1987 and 2000). The Office of Historic Preservation's (OHP's) Historic Property Directory (2005) identified a segment of SR 267 as a 6Y resource, one determined ineligible for the NRHP by consensus through the Section 106 process, but not evaluated for the CRHR or a local listing. Other sources consulted were Gold Districts of California (1979), California Gold Camps (1975), California Place Names (1969), Survey of Surveys of historic and architectural resources (1989), and the Directory of Properties in the Historical Resources Inventory (HRI) (August 2000).

Consultation

A letter to the NAHC requesting review of the Sacred Lands Files for areas of Native American concern was submitted on August 22, 2005 by Mactec. No cultural resources were identified by the NAHC. Letters were also sent to Native Americans identified as having interest in the project region and included the Washoe Tribe of Nevada and California and a representative of the Maidu/Washoe people. No cultural resources or concerns were identified by this correspondence or in follow-up phone calls. The Placer County Museum and Historical Society were also contacted by letter and email, and no cultural resources or concerns were identified.

Field Survey

Archaeology

Results of inventory of the archaeological APE appear in the project ASR (Reno and Clay 2006). A systematic pedestrian archaeological survey of the identified direct impact areas for this action was completed in June 2001 and September 2002. A reconnaissance of the APE was conducted in October 2006 by a Jones & Stokes archaeologist. Resources were mapped and photographed.

Architecture

Fieldwork for architectural resources occurred between November 2002 and January 2003. Resources were photographed and results of the survey were recorded on DPR 523 forms.

Summary of Known Archaeological and Architectural Resources

The following section describes known archaeological and historical cultural resources in, or directly adjacent to, the cultural resources action area, and their significance findings. The completed DPR forms for architectural resources are included in Appendix D.

Archaeological Resources

One isolated historic feature (a high cut stump) was located within the action area. Isolated features are not considered significant resources for the purposes of CEQA or Section 106 because they lack association and therefore cannot convey importance.

Architectural Resources

The built environment APE contains 171 improved parcels, some comprising multiple assessor parcel numbers (APN). Of these 171 parcels, 61 contain buildings constructed prior to or during 1960. Three of the 61 parcels (Blair's Cottages, the Felte Building [formerly the Blue Lagoon Café], and the Welch Houses) appear to meet the criteria for listing in the NRHP, CRHR, and TRPA. The results of the survey and evaluation of the 61 properties are shown in Table 3.2-1. The basic findings for the three historic properties are also summarized below. Additional information for all 61 resources is located in Appendix D.

Blair's Cottages (APN 090-071-017)

This property, currently called Ann's Cottages, is located at 8199 North Lake Boulevard between Secline and Deer Streets. The property includes an office/residence, two duplex units, and three single units surrounding a central courtyard/ parking lot area. It is a locally exceptional representative of a Minimal Traditional motor court design that makes

use of Mountain Rustic stylistic elements, with a period of significance of 1946 to 1960. The property retains a high degree of integrity and appears nearly unmodified since original construction. Blair's Cottage appears to meet the criteria for listing in the NRHP at the local level of significance under Criterion C, the CRHR under Criterion 3, and TRPA under Criterion C. The property is a historical resource for the purposes of CEQA.

The Felte Building (APN 090-075-009)

This property is located at 8399 North Lake Boulevard at the corner of North Lake Boulevard (SR 28) and Bear Street. Formerly known as the Blue Lagoon Café, this property is a two-and-a-half-story rectangular wood frame commercial building with a jerkin-head roof. It is a locally exceptional representative of a late 19th century, utilitarian commercial design that illustrates how amenable the style was to Mountain Rustic adaptation. It is one of the few surviving pre-World War II commercial buildings at Lake Tahoe and has a period of significance of 1924 to 1945. The building retains a fairly high degree of integrity despite some changes in appearance since original construction. The Felte Building appears to meet the criteria for listing in the NRHP at the local level of significance under Criterion C, the CRHR under Criterion 3, and TRPA under Criterion C. The property is a historical resource for the purposes of CEQA.

The Welch Houses (APN 090-134-017)

This property is located at 8659 Brockway Vista Avenue east of Coon Street and includes two small gable cabins and a detached garage. They are locally exceptional representatives of a Minimal Traditional vacation home and outbuilding design with enhancements that reflect the Mountain Rustic ethic, with a period of significance for the property of 1924 to 1945. The cabins and garage all retain a high degree of integrity and appear to be nearly unmodified since original construction. The Welch House appears to meet the criteria for listing in the NRHP at the local level of significance under Criterion C, the CRHR under Criterion 3, and TRPA under Criterion C. The property is a historical resource for the purposes of CEQA.

Table 3.2-1. Pre-1960 Properties in Action Area

Resource No.	Name	Address/Location	Community	Eligibility Status		
				NRHP	CRHR	TRPA
1	Stones County Tire	8001 N Lake Blvd.	Kings Beach, CA	No	No	No
2	Kings Beach Library	301 Secline St.	Kings Beach, CA	No	No	No
3	Torres Apartments	8094 Rainbow Ave.	Kings Beach, CA	No	No	No
4	Little Bear Cottages	8095 N Lake Blvd.	Kings Beach, CA	No	No	No
5	La Comunidad Unida	8111 N Lake Blvd.	Kings Beach, CA	No	No	No
6	Caesar's Motel	8123 N Lake Blvd.	Kings Beach, CA	No	No	No
7	Habeger Houses	8173 N Lake Blvd.	Kings Beach, CA	No	No	No
8	Anderson House	265 Deer St.	Kings Beach, CA	No	No	No
9	Hurtando Apartments	325 Deer St.	Kings Beach, CA	No	No	No
10	Benning's Resort	8315 Trout Ave.	Kings Beach, CA	No	No	No
11	Jameson Houses	8333 Rainbow Ave.	Kings Beach, CA	No	No	No
12	Henderson House	8363 Rainbow Ave.	Kings Beach, CA	No	No	No
13	Franklyn Lee House	8368 Rainbow Ave.	Kings Beach, CA	No	No	No
14	Lake Air Resort	265 Bear St. 8385 Trout Ave.	Kings Beach, CA	No	No	No
15	Lofstead Houses	8358 Trout Ave.	Kings Beach, CA	No	No	No
16	Glad-Lee Lodge	268 Bear St.	Kings Beach, CA	No	No	No
17	Northwood Pines Motel	8489 Trout Ave.	Kings Beach, CA	No	No	No
18	Kalange Apartments	8448 Trout Ave.	Kings Beach, CA	No	No	No
19	La Mexicana Meat Market	8515 Brook Ave.	Kings Beach, CA	No	No	No
20	Duzevich House	8534 Trout Ave.	Kings Beach, CA	No	No	No
21	Going House	8550 Trout Ave.	Kings Beach, CA	No	No	No
22	C. Smith Apartments	8537 Brook Ave.	Kings Beach, CA	No	No	No
23	Old Post Office	8401 N Lake Blvd.	Kings Beach, CA	No	No	No
24	Bruening Realty	8470 Brook Ave.	Kings Beach, CA	No	No	No
25	Alpine Club/ Tradewinds	8545 N Lake Blvd.	Kings Beach, CA	No	No	No
26	Bervid House	241 Coon Street	Kings Beach, CA	No	No	No
27	R. Barber Houses	8673 Salmon Ave.	Kings Beach, CA	No	No	No
28	Schneider House	8679 Salmon Ave.	Kings Beach, CA	No	No	No
29	S. Smith Buildings	8675 N Lake Blvd.	Kings Beach, CA	No	No	No
30	Miniature Golf	8681 N Lake Blvd.	Kings Beach, CA	No	No	No
31	S. Smith Apts	8684 Salmon Ave.	Kings Beach, CA	No	No	No
32	C. Smith House	8771 N Lake Blvd.	Kings Beach, CA	No	No	No
33	Tacos Jalisco	8717 N Lake Blvd.	Kings Beach, CA	No	No	No
34	Miller House	8789 Minnow Ave.	Kings Beach, CA	No	No	No

Table 3.2-1. Continued

Resource No.	Name	Address/Location	Community	Eligibility Status		
				NRHP	CRHR	TRPA
35	Shoberg House	8827 Minnow Ave.	Kings Beach, CA	No	No	No
36	Blue Waters Lodge	221 Chipmunk St.	Kings Beach, CA	No	No	No
37	Gifford House	8817 N Lake Blvd.	Kings Beach, CA	No	No	No
38	Eriksson House	8129 Brockway Vista Ave.	Kings Beach, CA	No	No	No
39	Rasch House	8317 Rainbow Ave.	Kings Beach, CA	No	No	No
40	Gold Crest Motel	8194 N Lake Blvd.	Kings Beach, CA	No	No	No
41	Crown Motel	8200, 8226 N Lake Blvd.	Kings Beach, CA	No	No	No
42	Sun 'N Sand Motel	8308 N Lake Blvd.	Kings Beach, CA	No	No	No
43	Mr. Video	8612 N Lake Blvd.	Kings Beach, CA	No	No	No
44	Lakeside Gallery & Gifts	8636 N Lake Blvd.	Kings Beach, CA	No	No	No
45	Dentraygues House	8680 N Lake Blvd.	Kings Beach, CA	No	No	No
46	Rockwood Houses	8669 Brockway Vista Ave.	Kings Beach, CA	No	No	No
47	Duggan Houses	8675, 8677, and 8679 Brockway Vista Ave.	Kings Beach, CA	No	No	No
48	Smyly Houses	8681 and 8685 Brockway Vista Ave.	Kings Beach, CA	No	No	No
49	M. Smith House	8693 Brockway Vista Ave.	Kings Beach, CA	No	No	No
50	Golden Group & Quality Carpet Care	8702 N Lake Blvd.	Kings Beach, CA	No	No	No
51	Dew-Mar Cottages	8716 N Lake Blvd.	Kings Beach, CA	No	No	No
52	Stevenson's Holliday Inn	8742 N Lake Blvd.	Kings Beach, CA	No	No	No
53	Ta-Tel Motel	8748 N Lake Blvd.	Kings Beach, CA	No	No	No
54	Sierra TV & Launderette	8762 N Lake Blvd.	Kings Beach, CA	No	No	No
55	Johnson Building	8788 N Lake Blvd.	Kings Beach, CA	No	No	No
56	Sierra Pacific Coffee	8790 N Lake Blvd.	Kings Beach, CA	No	No	No
57	Blair's Cottages	8199 N Lake Blvd.	Kings Beach, CA	Yes	Yes	Yes
58	Fuhrmann Houses	8220 and 8230 Rainbow Ave	Kings Beach, CA	No	Yes	Yes
59	Felte Building (formerly the Blue Lagoon Café)	8399 N Lake Blvd.	Kings Beach, CA	Yes	Yes	Yes
60	Lanini House	8080 Brockway Vista Ave	Kings Beach, CA	No	Yes	Yes
61	Welch Houses	8659 Brockway Vista Ave.	Kings Beach, CA	Yes	Yes	Yes

Federal Regulations

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S.C. 303, declares that “it is the policy of the U.S. Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project... requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

1. there is no prudent and feasible alternative to using that land; and
2. the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the U.S. Department of the Interior and, as appropriate, the involved offices of the U.S. Departments of Agriculture and Housing and Urban Development in developing transportation projects and programs which use lands protected by Section 4(f). If historic sites are involved, then coordination with the SHPO is also needed.

Under federal regulations, adverse effects on cultural resources need only be analyzed if a resource meets the eligibility criteria for listing in the NRHP. Federal regulations define an adverse effect on a cultural resource as an action that may diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.

Adverse effects on historic properties can include:

- Physical destruction of or damage to all or part of the property;

- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (*36 CFR Part 68*) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe or Native Hawaiian organization; and
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

3.2.3.2 Evaluation of Cultural Resources Impacts

A total of 61 buildings and/or structures constructed prior to or during 1960 have been identified and evaluated for historical significance. Three of the resources evaluated (Blair's Cottages, the Felte Building, and the Welch Houses) appear to be historically or architecturally significant. The following sections provide additional information regarding impacts related to individual resources.

Impact CR-1: Potential Disturbance to Unidentified Archaeological Resources during Construction

Alternative 1

Alternative 1, the no build alternative, avoids all impacts on cultural resources. If the existing roadway configuration remains unchanged and no parking areas are constructed, no effects would occur.

Alternatives 2, 3, and 4

The proposed action includes Alternatives 2, 3, and 4, which all involve modifications to SR 28 within the Kings Beach Commercial Core. Though a pedestrian inventory of the action area has been conducted and no cultural resources were located, only the ground surface was examined and there is the potential that buried deposits could be inadvertently unearthed during ground-disturbing activities associated with project construction. This is considered a potentially adverse effect, but implementing Mitigation Measure CR-1 will minimize this effect.

Impact CR-2: Inadvertent Discovery of Native American Human Remains

Alternative 1

Alternative 1, the no build alternative, avoids all impacts on cultural resources. If the existing roadway configuration remains unchanged and no parking areas are constructed, no effects would occur.

Alternatives 2, 3, and 4

In the case of inadvertent discovery of Native American human remains, it will be necessary to comply with both state and federal regulations.

The Native American Graves Protection and Repatriations Act (NAGPRA) (*Public Law 101-601*), (*25 U.S.C. 3001–3013*) requires consultation with appropriate native groups (e.g., Native Americans, Alaska Natives, Native Hawaiians) prior to excavation (either intentionally or through inadvertent discovery) of specified cultural items, comprising human remains, associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony. It provides procedures for contacting and consulting the appropriate Native American groups. A similar state law exists in California that provides a parallel process (California Health and Safety Code Section 8010 et seq.).

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100) and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or

excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC.

No human remains are known to be located in the action area. However, there is always the possibility that unmarked burials may be unearthed during construction. This effect is considered potentially adverse. Implementation of Mitigation Measure CR-2 would reduce the severity of this effect.

Impact CR-3: Destruction or Disturbance to a Significant Architectural Resource—Felte Building (No Impact)

Alternative 1

Alternative 1, the no build alternative, avoids all impacts on cultural resources. If the existing roadway configuration remains unchanged and no parking areas are constructed, no effects would occur.

Alternative 2 and 4

No effects on significant cultural resources would occur under Alternatives 2 and 4.

Alternative 3

The proposed action would construct a sidewalk along the east side of the Felte Building (8399 North Lake Boulevard). Proposed construction is not expected to materially impair (i.e., demolish or substantially alter the physical characteristics of) the building. Thus, the Felte Building would continue to convey its historical significance. Consequently, no effect on this resource is anticipated.

In an August 11, 2006 letter between Mr. Wayne Donaldson, SHPO, and FHWA, FHWA notified SHPO of its intent to make *de minimis* impact findings for 4(f) properties if when SHPO concurs with “no adverse effect” findings. In the event that the SHPO does not respond to FHWA’s finding of “no adverse effect” within 30 days; or when Caltrans notifies the SHPO of a “no historic properties affected” or “no adverse effect with standard conditions” finding, FHWA would likewise make a *de minimis* impact finding if

the subject property is a 4(f) property. This letter, which is found in Appendix D, was subsequently signed and dated by Mr. Wayne Donaldson on August 28, 2006. On November 30, 2006, Caltrans sent a letter to Mr. Wayne Donaldson, SHPO, seeking his office's concurrence in the substitution of a finding of "No Historic Properties Affected" pursuant to revised regulations issued by the ACHP (*36 CFR Part 800*). This letter may be found in Appendix D.

Under the 40-year-old provisions of Section 4(f), the Secretary of Transportation may not use land from a property in or eligible for the NRHP unless there is no prudent and feasible alternative to the use of that land and the Secretary has undertaken all possible planning to minimize harm to the historic property. Under a recently enacted amendment to Section 4(f), however, that statute will be considered satisfied if the project would result in a de minimis impact on the protected property (Federal Highway Administration pers. comm.). For historic sites, the new law states that the Secretary may find such a de minimis impact if consultation with the SHPO results in a determination that a transportation project will have "no adverse effect" on the historic site or that there will be "no historic properties affected" by the proposed action. With regard to the Felte Building, the SHPO concurred with the Caltrans' determination that no historic properties would be affected. Accordingly, the provisions of Section 4(f) would be considered satisfied should this alternative be selected.

3.2.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Mitigation Measure CR-1: Stop Work if Buried Resources Are Discovered Inadvertently

The project applicant and its construction contractor will take the steps specified below during project construction. If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or bone, are discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a archaeologist who meets the Secretary of the Interior's qualification standards can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the Caltrans, the SHPO, and

other appropriate agencies. Appropriate treatment measures may include development of avoidance or protection methods, archaeological excavations to recover important information about the resource, research, or other actions determined during consultation.

Mitigation Measure CR-2: Comply with State and Federal Laws Relating to Native American Remains

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, *State Health and Safety Code Section 7050.5* states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to *PRC Section 5097.98*, if the remains are thought to be Native American, the coroner will notify the NAHC who will then notify the MLD. At this time, the person who discovered the remains will contact Caltrans so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of *PRC 5097.98* are to be followed as applicable.

There will be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent human remains, until:

- the Placer County coroner has been informed and has determined no investigation of the cause of death is required, or
- if the remains are of Native American origin:
 - the NAHC has notified Tribal representatives for any federally or state recognized tribes or other interested groups by telephone with written confirmation. Notification will include information about the kinds of human remains, etc., present, their condition, and the circumstances of their discovery. Return receipt mail provides proof of written notification.

This initiates the 30-day waiting period. If a federally recognized tribe can claim the territory associated with the find, NAGPRA procedures will be followed. If no federally recognized tribes can claim the territory associated with the find, proceed directly to the requirements of California NAGPRA and *PRC Section 5097.98*.

- the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods or the NAHC is unable to identify a descendant or the descendant fails to make a recommendation within 24 hours after being notified by the NAHC.

3.2.5 Compliance with Tahoe Regional Planning Agency Code

Sections 29.2 and 29.5 of the TRPA Code of Ordinances prohibit demolition, disturbance, removal, or significant alteration of significant historic resources without a TRPA approved resource protection plan, and set standards for resource discovery, protection, preservation, evaluation, and management.

3.3 Social Environment

3.3.1 Affected Environment

The action area is contained within the Kings Beach Census Designated Place (CDP), a geographic designation devised by the U.S. Census Bureau (USCB) for compilation of data for the portion of the 11.27-kilometer-wide (7.0-mile-wide) area contained on the north shore of Lake Tahoe between the Nevada state line and the Tahoe Vista CDP. The Kings Beach CDP defines the study area used to describe the social environment of the proposed action. The social environment includes the neighborhood, demographics, public services, and circulation characteristics of the study area as described in the *Community Impact Assessment Kings Beach Commercial Core Project* (Appendix F).

3.3.1.1 Community/Neighborhood Characteristics

The action area runs through the unincorporated community of Kings Beach, along North Lake Boulevard SR 28, which parallels the north shore of Lake Tahoe. Single- and multifamily homes are located on both sides of SR 28 but are concentrated north of the highway due to the proximity of the lake on the south side. Kings Beach is mainly an older rustic community located immediately west of the Nevada-California state line. The community has many small, local-serving businesses along SR 28 and includes an elementary school, a fire dispatch unit, and a volunteer sheriff's department. Kings Beach State Recreation Area, a 213.36-meter (700-foot) public access beach, is also available to residents and visitors and is located off of SR 28. Residents use SR 28 to reach retail stores, medical services, and jobs located in the nearby cities of Incline Village, and Tahoe City. Access to Truckee is along SR 267, which intersects with SR 28 at the western end of the community.

3.3.1.2 Population Characteristics

According to the USCB, the study area Kings Beach CDP had a population of approximately 4,307 in the year 2000, accounting for 1.7% of the 248,399 persons residing in Placer County. Between 1990 and 2000, the study area's population increased

by 1,241 persons, or by 44.4%. This growth is consistent with the countywide increase of 75,603 persons (44% increase) in population during the same time.

No growth projections are available for the study area. According to projections prepared by Placer County (Placer County 2005a), the unincorporated area of Placer County designated as High Country, which includes the study area, is projected to grow at an annual rate slightly lower than 0.3% between 2000 and 2010. This rate is much lower than the annual growth rate of 3.7% for Kings Beach between 1990 and 2000.

As Table 3.3-1 shows, the demographics of the study area reflect a generally young population. Only a small number of senior citizens aged 65 or older reside in the area, accounting for only 3.4% of the population. By comparison, 13.1% of the countywide population is in this age group. Similarly, the median age of residents in the study area, at 29.2, is substantially lower than the countywide median age of 38.0. The percentage of the population that is under age 18 (28.0%) remains similar, although it is slightly higher than that for the county (26.5%). The study area had a median household income of \$35,507 in 2000, which is significantly lower than the median incomes in Placer County and statewide (Table 3.3-1).

Table 3.3-1. Selected Demographic Characteristics: 2000 Census

Area	Population	Average Persons per Household	Median Age	Percent Under Age 18	Percent Age 65 or Older	Median Household Income
California	33,871,648	2.87	33.3	27.3	10.6	\$47,493
Placer County	248,399	2.63	38.0	26.5	13.1	\$57,535
Kings Beach	4,307	2.86	29.2	28.0	3.4	\$35,507

Source: U.S. Census Bureau 2005.

The racial characteristics of the study area, which are presented in Table 3.3-2, generally reflect a population that is largely white and Hispanic. With whites and Hispanics nearly equally distributed in the study area (49.0% and 48.4% respectively), no other racial groups make up a significant portion of the area's population. Although the study area is

more similar in demographics to the state as a whole, it is markedly more diverse than Placer County, which is predominantly white. Persons of Hispanic or Latino heritage accounted for 48.4% of the study area's population in 2000, about five times greater than that of Placer County.

Table 3.3-2. Racial Distribution of Area Populations: 2000 Census

Area	White	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Other Race	Two or More Races	Hispanic or Latino of Any Race
California	46.7%	6.4%	0.5%	10.8%	0.3%	0.2%	2.7%	32.4%
Placer County	83.4%	0.8%	0.7%	2.9%	0.1%	0.1%	2.3%	9.7%
Kings Beach	49.0%	0.3%	0.7%	0.4%	0.0%	0.1%	1.0%	48.4%

Note:

Percentages for each area total greater than 100% because persons of Hispanic or Latino heritage may be considered members of other racial classifications.

Source: U.S. Census Bureau 2005.

3.3.1.3 Residential Environment

According to the 2000 Census, 2,284 housing units are located in the study area, representing only 2% of the county's housing stock (Table 3.3-3). The study area's housing stock is relatively older with 32.0% of houses constructed prior to 1960, compared to 14.4% countywide. Although single-family housing units account for the largest share of the study area's housing stock (70.9%), they are still nearly 10% less than that of the county. The percentage of mobile homes in the study area is comparable to both county- and statewide numbers (Table 3.3-3).

Table 3.3-3. Selected Housing Characteristics: 2000 Census

Area	Total Housing Units	Percent Vacant	Percent Single-Family Units	Percent Mobile Homes	Percent Constructed Prior to 1960	Percent Owner-Occupied	Median House Value	Median Rent
California	12,241,549	5.8%	64%	4.4%	32.6%	56.9%	\$211,500	\$677
Placer County	107,302	12.9%	79.8%	4.2%	14.4%	73.2%	\$213,900	\$687
Kings Beach	2,284	38.2%	70.9%	4.6%	32.0%	39.3%	\$202,400	\$574

Source: U.S. Census Bureau 2005.

In 2000, the study area's housing stock was composed of 39.3% owner-occupied housing and 60.7% renter-occupied housing. During the Census, approximately 873 housing units were vacant within the study area, resulting in a relatively high vacancy rate of 38.2%. When seasonal and recreational homes were excluded, the vacancy rate fell to 18%, but it still remains higher than the state- and countywide percentages.

The median value of housing in the study area was approximately \$202,400 in 2000, which is lower than the median value of housing in Placer County and the state as a whole (Table 3.3-3). The lower value in the study area may reflect the influence of the study area's relatively low median household income (Table 3.3-1). Similarly, median rental rates (Table 3.3-3) within the study area, at \$574, were also substantially lower than in Placer County (\$687) and statewide (\$677).

The style, condition, and age of housing in the action area vary substantially. Homes located along the shoreline on SR 28 tend to be larger, newer single-family or multi-family units. To the north of SR 28 and among the side streets off of Chipmunk Street, the houses vary from newer multimillion-dollar homes, condos, and timeshares to older trailer parks and modest wood frame structures. New homes are still being constructed on vacant parcels, and home remodeling is also occurring around the area.

3.3.1.4 Economic Setting

Tax Revenue

Property tax and sales revenues generated by private properties within the action area are received by Placer County. Parts of about 121 privately owned parcels are located along the permanent ROW area of the proposed action and are subject to the 1% property tax rate. During the 2003–2004 fiscal year, Placer County’s countywide property tax revenues were approximately \$332 million (Placer County 2005b).

Businesses along and adjacent to the action area potentially generate sales tax revenue through the sale of taxable products. The action area is also the location of nearly all businesses established in Kings Beach. Upwards of 75 businesses are located along this commercial strip, although information detailing the amount of sales tax generated from the area is not available.

Labor Force and Employment

According to the California Employment Development Department (CEDD), which prepares labor force and employment estimates for California counties, Placer County’s civilian labor force averaged 155,000 in 2004, of which 2,600 resided in Kings Beach. In 2004, unemployment in the county and study area averaged an estimated 4.5% and 4.6%, respectively.

Employment by industries located in Placer County provided 134,000 jobs in 2004. Goods producing, retail trade, services (including tourism), and government are the dominant employers in Placer County. As outlined in the 2003 study *The Economic Significance of Travel to the North Lake Tahoe Area*, tourism generates 70% of jobs and over \$17 million dollars in taxes in the North Lake Tahoe area (Dean Runyan Associates 2003). Major employers include Alpine Meadows Ski Resort; Squaw Creek in Olympic Valley; Hewlett-Packard in Roseville; Oracle in Rocklin; Sutter Health in both Auburn and Roseville; Thunder Valley Casino in Rocklin; and the Placer County government,

which is in various locations but primarily in Auburn (California Employment Development Department 2005).

Information regarding sales tax revenues for the Kings Beach action area was provided by Placer County and indicates that the Kings Beach action area generated \$374,875 for Placer County in 2005. According to the Kings Beach Community Plan, the area's overall goal is to provide an attractive resort community. This indicates a strong reliance on services such as tourist accommodations, restaurants, retail shops, boutiques, and leisure-oriented businesses in the area. Some of the local employers in the area include Stone Country Automotive, TransAm Gas (formerly Mobil), Ace Hardware, Motel California, Crown Motel, Rite Aid, Crosswinds Café, Steamers, Dave's Ski Shop, and Log Cabin Café. The retail and service sector of Kings Beach is located primarily along SR 28. According to the 2000 U.S. Census, approximately 37% of workers in Kings Beach had a commute of less than 15 minutes, indicating employment in or near the community. For them and those who commute farther to areas in Tahoe City, Truckee, Incline Village, and Sacramento, the transportation and consumer access provided by SR 28 is a key aspect of the local economy.

3.3.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

3.3.2.1 National Environmental Policy Act

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, *40 CFR 1508.8*, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

Under NEPA, the “human environment” encompasses both social and economic impacts. Economic and social effects must be discussed if they are interrelated with natural or physical environmental effects (*40 CFR sec. 1508.14*). For example, if an economic or social effect causes a physical change to the environment or vice versa, then these economic and social effects should be discussed in the environmental document.

In addition, NEPA requires that to the fullest extent possible other laws be integrated into the NEPA process (*40 CFR sec. 1502.25[a]*). This requirement applies to Executive Order 12898 and the Civil Rights Act of 1964, both of which are applicable to community resources.

All projects involving a federal action (funding, permit, or land) must comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2004, this was \$18,850 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this document. Caltrans’ commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix R of this document.

The NEPA, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (*42 U.S.C. 4331(b)(2)*). The FHWA in its implementation of NEPA (*23 U.S.C. 109(h)*) directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts,

such as, destruction or disruption of human-made resources, community cohesion and the availability of public facilities and services.

3.3.2.2 California Environmental Quality Act

Under CEQA, consideration of economic and/or social changes only occurs when they result in a physical change to the environment (*CEQA Guidelines §15064[f], 15382*).

The CEQA also requires the analysis of a project's potential to induce growth. *CEQA guidelines, Section 15126.2(d)*, require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

Under the CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

3.3.2.3 Tahoe Regional Planning Agency

TRPA Resolution No. 82-11, adopted August 1982, outlined the environmental threshold carrying capacities for the Lake Tahoe Region. The *environmental threshold carrying capacity* is defined as:

an environmental standard necessary to maintain significant scenic, recreational, educational, scientific, or natural value of the region or to maintain public health and safety within the region.

The thresholds set forth in Resolution 82-11 address the following nine components of the environment of the Tahoe Region: water quality, soil conservation, air quality, vegetation preservation, wildlife, fisheries, noise, recreation, and scenic resources. As

such, TRPA does not specifically include criteria for determining significance of social environments.

Although there is no threshold standard for economic indicators, TRPA recognizes the interdependence of environmental quality, economic health, and social-well being in the Lake Tahoe region. TRPA considers the impacts of the Regional Plan on the region's economy. Furthermore, in Article 1 of the TRPA Compact, (*Public Law 96-551*) the economic and social health of the Tahoe basin is addressed in the following findings:

- The waters of Lake Tahoe and other resources of the region are threatened with deterioration or degeneration, which endangers the natural beauty and economic productivity of the region.
- Maintenance of the social and economic health of the region depends on maintaining the significant scenic, recreational, educational, scientific, natural public health values provided by the Basin.

Responsibilities for providing recreational and scientific opportunities, preserving scenic and natural areas, and safeguarding the public who live, work and play in or visit the region are divided among local governments, regional agencies, the States of California and Nevada, and the federal government.

3.3.2.4 Population Growth Policies

Although located in Placer County, growth in the study area is guided primarily by the policies set forth by the TRPA. The TRPA sets thresholds of carrying capacities for growth and development as an effort to preserve the environment. Population growth is not directly addressed, but other policies may affect this secondarily (Graves pers. comm.).

3.3.3 Environmental Consequences (including Temporary, Direct, Indirect)

This section discusses the effects of Alternatives 1 through 4 on social characteristics (including environmental justice concerns), residential and commercial displacements, and economic activity in the action area.

NEPA criteria for determining adverse effects are listed in *40 CFR 1508.27*. In compliance with Executive Order 12898, the proposed action was considered to have an adverse effect under NEPA if it would result in disproportionately high numbers of significant adverse human health or environmental effects on minority and low-income populations. Provisions in the Executive Order apply to programs involving Native Americans.

The proposed action has been developed in accordance with the Civil Rights Act of 1964 (CRA), as amended; the Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended; and Executive Order 12898. Executive Order 12898 requires each federal agency to take the appropriate and necessary steps to identify and address disproportionately high adverse human health and environmental effects on minority and low-income populations that result from its programs, policies, and activities.

Environmental justice refers to the fair treatment of people of all races, cultures, and incomes with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The Council on Environmental Quality's *Guidance for Environmental Justice* (Council on Environmental Quality 1997) indicates that environmental justice concerns may arise from impacts on the natural or physical environment, such as human health or ecological impacts on minority and low-income populations, or from related social or economic impacts (California Department of Transportation 1997b). According to Caltrans guidelines for conducting community impact assessments (California Department of Transportation 1997b), *community cohesion* is the degree to which residents have a "sense of belonging" to their neighborhood; a level of commitment of the residents of the community; or a strong

attachment to neighbors, groups, or institutions, usually because of continued association over time. Physical barriers, such as major roadways or large open space areas, often delineate communities.

Cohesive communities are indicated by specific social characteristics, such as long average lengths of residency, home ownership, frequent personal contact, ethnic homogeneity, high levels of community activity, and shared goals. Transportation projects may divide cohesive neighborhoods when such projects act as physical barriers or are perceived as psychological barriers by residents. A transportation project perceived as a physical or psychological barrier may isolate one portion of a homogeneous neighborhood (California Department of Transportation 1997b).

Impact SOC-1: Displacement of a Substantial Number of People or Housing Units

Alternative 1

Alternative 1 is the no-build alternative, and it is assumed that the existing conditions would persist under this alternative and that the proposed action would not occur. No changes would occur to the social environment within the action area that would displace a substantial number of people or housing units. This alternative would not result in any adverse effects on people or housing units, and consequently no mitigation measures are required.

Alternatives 2, 3, and 4

There are no identified population or housing impacts resulting from either of these alternatives. There would be no adverse effects, and no mitigation is required.

Impact SOC-2: Impacts on Community Cohesion

Alternative 1

Alternative 1 is the no-build alternative. Existing conditions would persist under this alternative, and no effects would occur on community cohesion. No mitigation is required.

Alternatives 2, 3, and 4

Within the study area, SR 28 serves as the corridor connecting Kings Beach to surrounding communities, and it also provides commercial access for residents and tourists. Most homes and neighborhoods along the SR 28 action area are located north of SR 28. Residents of these neighborhoods use vehicles to reach commercial centers or homes along SR 28, but improvements would create more pedestrian friendly access. The SR 28 roadway would be slightly narrowed under Alternatives 2 and 4 and would include bike lanes, pedestrian crosswalks, and sidewalks under all alternatives. Under Alternatives 2 and 4, sidewalks would be widened to 2.9 meters (9.5 feet) and 5.3 meters (17.4 feet), respectively. Under Alternative 3, the sidewalk would be widened to 1.7 meters (5.6 feet). Alternatives 2 and 4 would be more conducive to pedestrian and bicycle mobility than Alternative 3. All alternatives would serve to reduce the existing physical barrier that separates the opposing sides of the commercial strip from the surrounding neighborhoods. This is a beneficial effect and no mitigation measure is required.

Impact SOC-3: Disproportionate Environmental Effects on Races, Cultures, or Incomes (Environmental Justice)

Alternative 1

Alternative 1 is the no-build alternative. Existing conditions would persist under this alternative, and there would be no adverse environmental justice–related effects on income, culture, or race. No mitigation is required.

Alternatives 2, 3, and 4

An evaluation of data from the 2000 U.S. Census (U.S. Census Bureau 2000) indicates that the income and racial characteristics of the study area are markedly dissimilar to those of Placer County, with the study area comprising a proportionally larger minority population (Hispanic) than found in Placer County (Table 3.3-2). Median household income in the study area is significantly lower than in Placer County (Table 3.3-1). Additionally, the study area has a much larger percentage (17.7%) of its population living below the poverty level than the percentage countywide (5.8%). Based on this data and

field observations, it is likely that the proposed action would have impacts on minority or low-income populations, but the effects are largely beneficial. Improved safety for pedestrians and bicyclists along SR 28 serves residents who may rely on transportation other than motor vehicles. Furthermore, construction and operations-related effects of the proposed action would occur along the length of the commercial corridor, with effects generally spread evenly across all populations residing near the action area. Based on the above discussion and analysis, Alternatives 2, 3, and 4 will not cause disproportionately high and adverse effects on any minority or low-income populations as per Executive Order 11898 regarding environmental. Based on the above discussion and analysis, Alternatives 2, 3, and 4 will not cause disproportionately high and adverse effects on any minority or low-income populations as per Executive Order 12898 regarding environmental justice. As none of the alternatives would result in substantial adverse effects no mitigation measures are required.

Impact SOC-4: Loss of Property Tax Revenue

Alternative 1

Alternative 1 is the no-build alternative. Existing conditions would persist under this alternative, and no adverse effects on property tax revenue would occur. No mitigation is required.

Alternatives 2, 3, and 4

The total amount of area regarded as partial acquisitions of privately owned properties required for Alternatives 2 through 4 is of such insignificance that property tax revenues currently being generated by these properties for Placer County and other local agencies would not be reduced. Because no retail commercial uses would be fully displaced by the alternatives, the proposed action is not anticipated to cause changes in sales tax revenues for Placer County.

Alternatives 2, 3, and 4 would not displace any residential property and therefore not result in losses in property tax revenue for Placer County. Therefore, this is not considered an adverse effect and no mitigation measure is required.

Impact SOC-5: Revenue Effects on Local and Roadside Businesses

Alternative 1

Alternative 1 is the no-build alternative. Existing conditions would persist under this alternative, and no adverse effects on local and roadside businesses would occur. No mitigation is required.

Alternative 2

Under Alternative 2, ROW acquisition and changes in access and parking could cause impacts on businesses located adjacent to SR 28 between SR 267 and Chipmunk Street. An estimated 2.74 meters (9 feet) of total area for sidewalk construction would be needed along SR 28, and properties most impacted by this do not currently have a buffer between their buildings and the roadway or they use this area for parking.

Alternative 2 would result in the following impacts on businesses in the study area.

- Improvements at the intersection of SR 28/SR 267 would displace a portion of parking lot area on the corner of APN 117-180-007. The commercial building of Stone's Automotive uses this area as part of its parking lot. No parking would be displaced, but a loss of a portion of the lot would decrease the space available for vehicles to maneuver through the lot. Access change may also be imposed on the business, as entry along SR 28 may no longer be provided. However, entry along SR 267 would be maintained, so these changes should not create major problems for the business. This is not considered an adverse effect and no mitigation is required.
- The commercial property located at 8079 SR 28 (APN 090-071-026/090-071-025) would lose areas south and southwest of the building that is used by customers as a parking area. Loss of this area would require customers to access parking along Secline Street or along the proposed parking lane further east on SR 28. This is not considered an adverse effect and no mitigation measure is required.
- Vehicular access from the south side of the building on APN 090-123-023 (7-Eleven) would be impacted, but access would continue to be provided on the southeast side of

the building from Coon Street. Construction of this access area would displace two parking spaces in front of the building, although seven additional spaces would be created with the closure of the SR 28 entrance. This is not considered an adverse effect and no mitigation is required.

- APN 090-142-002 may lose vehicle access along SR 28. This parcel currently has no existing buildings, and as such the severity of impacts depends on the future use of this property. This is not considered an adverse effect and no mitigation measure is required.
- APN 090-071-026/090-071-025 would lose approximately 10 spaces of parking. Although access is also being discontinued from SR 28, the loss of the 10 parking spaces is not anticipated to affect the operation of the businesses at this location. However, Placer County has committed to compensating for parking spaces that would be lost as a result of either build alternative (see discussion under *Section 3.7*). SR 28 improvements and ROW acquisition would displace the entire amount of parking used by customers of the business located at 8160 SR 28 (APNs 090-072-023/ 090-072-024).
- 8338 SR 28 (APNs 090-080-001/ 090-080-002) would lose approximately 12 parking spaces due to ROW acquisitions. These spaces make up the entire amount of parking available for the retail businesses in this building. However, Placer County has committed to compensating for parking spaces that would be lost as a result of either build alternative (see discussion under *Section 3.7*). This alternative would modify SR 28 from a four-lane cross section roadway to a three-lane cross section roadway, which would result in more traffic congestion than the four-lane alternative.

Alternative 3

Impacts on businesses in the action area caused by changes in setbacks, access, and parking would be the same as those described for Alternative 2 (NEPA Impacts) with the following exceptions.

- The business located at 8593 SR 28 (APN 090-123-023) would not be impacted as described under Alternative 2. This alternative creates no change on the existing parcel other than a small corner frontage take. This is not considered an adverse effect and no mitigation is required.
- The existing entry to the Jenkin's Building (APN 090-123-008) would be discontinued in this alternative. No break in the sidewalk is planned for the parcel and access may be entirely pedestrian along SR 28. However, entry in front of APNs 090-123-010 and 090-123-023 would be maintained so these changes should not create major problems for businesses located in this building. This is not considered an adverse effect and no mitigation measure is required.
- The traffic congestion associated with the three-lane alternatives would not occur under the four-lane alternative, but this alternative would result in less room for sidewalks and bicycle access due to the extra lane, which could result in less pedestrian and bicycle mobility along the KBCC. In addition, the wider lanes associated with the four-lane alternative could make pedestrian crossing across SR 28 more difficult, compared to the three-lane alternative. These factors could result in fewer economic benefits to the KBCC area than would occur under the three-lane alternative, as less pedestrian and bicycle mobility could result in fewer shoppers in the KBCC area.

Alternative 4

Impacts on businesses in the action area caused by changes in setbacks, access, and parking would be the same as those described for Alternative 2 (NEPA Impacts).

Impact SOC-6: Construction-Related Economic Impacts

Alternative 1

Alternative 1 is the no-build alternative. Existing conditions would persist under this alternative, and no construction related economic effects would occur. No mitigation is required.

Alternatives 2, 3, and 4

The construction of proposed improvements for Alternatives 2, 3, and 4 would have temporary economic effects in the local area and region. One temporary effect would be the increase in economic activity due to project related spending. This would include the purchases of goods and services required for construction and employment of workers needed for construction. The increased economic activity would prompt secondary economic activity as a portion of the construction-related revenue and employee compensation is spent in sectors throughout the local and regional economy. The extent of the economic impact of construction-related expenditures on the local and regional economy would depend on the proportion of construction expenditures that would occur in the local and regional area and on the residential location of persons employed by construction contractors.

A separate temporary economic effect would be a decrease in economic activity due to decreased tourism. As previously indicated, tourism generates 70% of jobs and over \$17 million dollars in taxes in the North Lake Tahoe area (Dean Runyan Associates 2003). This heavy reliance on tourism can be easily affected by accessibility and transportation changes leading into and around the action area. Because SR 28 is a main corridor within the action area, the secondary economic impacts that could occur during construction periods are related to tourism. Access changes, parking disruptions, and traffic delays could discourage visitors and decrease local tax revenues and sales within the action area. The extent of the economic effect of the construction-related decrease in tourist volumes on the local and regional economy would depend on the length and season of the construction period and the construction timing of other related projects. Implementation of a Community Involvement and Participation Plan (CIPP) through Mitigation Measure LU-1, as described in *Section 3.8, Land Use*, and a Construction Traffic Management Plan (CTMP) through Mitigation Measure TRA-3 in *Section 3.6, Traffic*, would minimize this effect. These measures would act to spread awareness about the proposed action and coordinate efforts in order to minimize the effects of construction activities. In addition, the cumulative effects of construction-related projects on major

routes of travel in the greater action area could also affect the regional economy. To minimize these effects, the implementation of an interregional transportation management plan (RTMP) is recommended to coordinate efforts between agencies and the scheduling of projects. The Caltrans TMP Unit is still making determinations of thresholds for delays as the development of the RTMP is being undertaken

3.3.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Mitigation Measure LU-1: Implement a Community Involvement and Public Participation Plan

This mitigation measure is described in *Section 3.8, Land Use*.

Mitigation Measure TRA-2: Implement Construction Traffic Management Plan during Construction

This mitigation measure is described in *Section 3.6, Traffic*.

3.3.5 Compliance with Tahoe Regional Planning Agency Code

TRPA regularly monitors economic conditions and considers the impacts of the Regional Plan on the region's economy. In meeting the needs outlined above, the proposed action will contribute to the achievement of planning goals at the community and regional level.

3.4 Hydrology and Floodplains

The following discussion summarizes the existing hydrologic and floodplain environment and regulatory environment as well as analyzes of direct and indirect environmental effects of the proposed action. Where feasible, measures are recommended to reduce the severity of identified effects. The information presented in this analysis is based on the *Kings Beach Watershed Improvement Project Final Hydrologic Conditions Report* (Entrix 2006b) located in Appendix G, the *Location Hydraulic Study* located in Appendix H, and the *Kings Beach Commercial Core Improvement Project Preliminary Delineation of Wetlands and Other Waters of the United States* located in Appendix I.

3.4.1 Affected Environment

Lake Tahoe is renowned for its exceptional clarity and water quality. Urbanization and development in the Lake Tahoe watershed have altered hydrologic patterns, resulting in increased impervious surface, which can have a negative effect on water quality. Extensive regulatory effort has been expended to identify hydrology concerns and develop effective management programs.

3.4.1.1 Flooding

The action area includes portions of the shore zone of Lake Tahoe and Griff Creek. The 100-year floodplain is associated with these water bodies. The Federal Emergency Management Agency (FEMA) issues Flood Insurance Rate Maps (FIRMs) to determine the likelihood of a flood to occur. Floodplain information was obtained from the Placer County (FIRM) Panel Number 0100 of Map Number 060239 (effective June 8, 1998). The proposed action is within the 100-year floodplain in Placer County, although base flood elevations have not been determined in this area. Figure 3.4-1 depicts the 100-year floodplain with respect to the proposed action area. As shown, the floodplain includes the Griff Creek channel and also a secondary outflow of this channel located on Deer Street, which ultimately drains to the lake. A floodplain also occurs along the shore zone of Lake Tahoe.

SR 28 was constructed in 1938. Drainage features were installed based on design criteria appropriate for that era. Since that time, some roadway and drainage modifications have been constructed, but for the most part, drainage facilities closely adhere to those that were part of the original construction as far as size and capacity are concerned. The watershed has experienced urbanization in the form of impervious material, which collects and concentrates stormwater runoff. Existing SR 28 facilities are inadequate to handle these increased flows.

Several locations along the length of SR 28 have experienced flooding and overtopping in recent years. Many of these occurrences are the result of localized, short-duration, yet very high intensity weather systems that are prevalent to the Lake Tahoe Basin. These intense storms typically result in clogged drainage systems resulting from the transport of floating debris and solid precipitation (snow and/or hail). Drainage systems are then overwhelmed, resulting in roadway flooding and, in some cases, overtopping.

3.4.1.2 Stream Environment Zones

Local surface water features are defined by TRPA as SEZs, which include “natural marsh and meadowlands, watercourses and drainageways, and floodplains which provide surface water conveyance from upland areas into Lake Tahoe and its tributaries” (Tahoe Regional Planning Agency 2004). Riparian vegetation is often associated with SEZs and provides habitat for many wildlife species. SEZs also promote higher water quality by slowing overland water flow to the lake and allowing percolation of water. These functions help limit sediment and nutrient transport to the lake.

TRPA, through land use classifications, has identified SEZs in the action area. SEZs are mapped along the shoreline, Griff Creek, and an unmapped drainage in the action area. Figure 3.4-2 illustrates the SEZ boundaries verified by TRPA in June 2004 that occur in the action area.

3.4.1.3 U.S. Army Corps of Engineers Jurisdictional Resources

Delineations of wetlands and other waters of the United States were conducted in the action area by Harding ESE, Inc. (2001), Mactec Engineering and Consulting, Inc. (2003, 2006c), and Jones & Stokes (2006) to determine the location and extent of USACE jurisdictional resources. The delineations were performed in accordance with Section 404 of the CWA and the *Corps of Engineers Wetland Delineation Manual* (U.S. Army Corps of Engineers 1987). Although the delineation conducted by Harding ESE (2001) was verified by the USACE, subsequent delineations were conducted as a result of modifications to the original action area. The delineations conducted by Mactec Engineering and Consulting, Inc. (2003, 2006c) were not verified, in part due to inopportune weather conditions (i.e., snow cover), which prevented quantifying eight intermittent drainages in the action area. Jones & Stokes conducted a delineation of the entire action area in September 2006 and identified a total of 0.719 acre of waters of the United States, including wetlands; this delineation was verified on February 26, 2007 (regulatory document 200600998) (Appendix I). The 0.719 acre of USACE jurisdictional resources comprises 0.329 acre of jurisdictional wetlands (i.e., depressional wetlands) and 0.390 acre of other waters of the United States (i.e., Griff Creek and Lake Tahoe).

All wetlands and waters of the United States are protected under Section 404 of the CWA under the jurisdiction of the USACE. Discharges into these resources are also protected under Section 401 of the CWA.

3.4.2 Regulatory Setting/Tahoe Regional Planning Authority Thresholds

3.4.2.1 Floodplains

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The FHWA requirements for compliance are outlined in 23 *CFR* 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

The National Flood Insurance Program produces maps that identify 100-year flood areas based on local hydrology, topography, precipitation, flood protection measures, and other scientific data. FEMA administers this program.

In order to comply, the following areas must be analyzed:

- the practicability of alternatives to any longitudinal encroachments,
- risks of the action,
- impacts on natural and beneficial floodplain values,
- support of incompatible floodplain development, and
- measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the proposed action.

3.4.2.2 Stream Environment Zones

The TRPA Code of Ordinances (*Section IX, Chapter 74*) provides protection for Stream Environment Zones (Tahoe Regional Planning Agency 2004a) and states in paragraph 74.2 Protection of Stream Environment Zones:

No project or activity shall be undertaken in an SEZ (land capability 1b) which converts SEZ vegetation to a non-native or artificial state, or which negatively impacts SEZ vegetation through action including, but not limited to, reducing biomass, removing vegetation or altering vegetation composition.

A land capability verification of the proposed action was performed by TRPA in 2004 and determined that two land capability classifications exist in the action area: 1b and 5. Classification 1b is described as, “Most sensitive and restrictive lands with least tolerance for disturbance by development with allowable impervious cover varying from 1 to 5 percent.” Classification 5 is described as exhibiting “Moderate sensitivity, with allowable impervious cover at 25 percent.” Classification 1b in the action area includes both beach and SEZ.

3.4.2.3 U.S. Army Corps of Engineers Jurisdictional Resources

Jurisdictional resources include wetlands and waters of the United States. According to the USACE and the EPA, jurisdictional wetlands are defined as:

those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstance do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (*33 CFR 328.2*).

In addition the USACE and the EPA define all other waters of the United States as:

all non-tidal waters that are currently, or were used in the past, or may be susceptible to use in interstate commerce; all interstate waters including wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate commerce; and all impoundments of waters otherwise defined as waters of the United States under this definition (*33 CFR 328.3*).

3.4.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

Impact HYD-1: Substantial Alteration in the Quantity of Surface Runoff

Alternative 1

The no-build alternative will not alter the quantity of surface water.

Alternatives 2, 3, and 4

The proposed Alternatives 2, 3, and 4 involve a variation of improvements to the current SR 28 along with many drainage improvements. These improvements result in increased amount of impervious surfaces that will concentrate stormwater runoff. These impervious surfaces include additional paved surfaces due to the construction of new bike paths, sidewalks, and off-site parking areas. Buildout of any of the alternatives would increase the amount of impervious surface area by adding cement and asphalt over previously bare ground, which could potentially lead to a change in drainage patterns and would result in more surface runoff during winter storms compared to existing conditions.

Stormwater flows based on various precipitation events were estimated in the *Kings Beach Watershed Improvement Project Final Hydrologic Conditions Report* in which the HEC-HMS model was used to estimate flows for the 25-year, 1-hour storm event and the 25-year, 72-hour storm event. Stormwater flows were estimated for Griff Creek along with all drainage outlets for the proposed action. The 25-year, 1-hour storm event flow for the Griff Creek Outlet was 53.8 cfs, while the 25-year, 72-hour flow was 1,199.6 cfs (Entrix 2006b). The 100-year, 24-hour event was also estimated as 1,000 cfs (Entrix 2006b). This discrepancy relates to the rainfall intensity for the different storms in relation to the infiltration rates. In the shorter duration storm, the initial precipitation goes to the soil moisture deficit, and subsequent precipitation goes to the constant infiltration and to runoff. With the longer duration storm, a greater amount of rainfall is available or runoff after removing the initial and constant infiltration amounts. For design flows on all other drainage outlets, refer to the *Kings Beach Watershed*

Improvement Project Final Hydrologic Conditions Report (Entrix 2006b) located in Appendix G.

Chapter 2, Alternatives, and Figure 2-3 indicate drainage, collection, conveyance, and treatment improvements that will be implemented as part of the Kings Beach WIP to improve water quality in the Kings Beach region and action area. These design features will help to collect, convey, and treat water runoff from the on-street parking sites implemented as part of the proposed action and as well as runoff flowing into the action area from areas upstream of the action area. Moreover, as indicated in *Chapter 2*, the proposed action drainage, collection, conveyance, and treatment facilities that tie into and interface with the WIP improvements would be designed and built to handle these flows at all culverts, crossings, and drainage facilities affected by the proposed action. In addition, all off-street parking lots would be designed with water collection and infiltration features to contain runoff on-site for a 20-year, 1-hour storm flow. These water collection and infiltration features will be incorporated into the off-site parking lots and are designed to minimize runoff associated with the additional hard coverage from the parking lots. Because water would be contained entirely on-site, the off-site lots would not worsen water quality in the region. Consequently, while implementation of the proposed action would increase the quantity of surface runoff due to increased impervious surfaces (i.e., additional paved surfaces due to the construction of new bike paths, sidewalks, and off-site parking areas), the improvements as part of the proposed action will sufficiently handle these increased flows. In addition, improvements associated with the proposed WIP will further increase water treatment capacity.

Impact HYD-2: Placement of Structures that Would Impede or Redirect Flood-Flows within a 100-Year Floodplain

Alternative 1

Implementation of the no-build alternative would not involve placement of structures that would impede or redirect any flows within the 100-year floodplain.

Alternatives 2, 3, and 4

A preliminary 100-year, 24-hour storm event memorandum was completed by Entrix (2006c) in which the HEC-RAS model was used to estimate the 100-year, 24-hour event for Griff Creek. Currently, Griff Creek has three 4-foot-by-6-foot arch corrugated metal pipe (CMP) culverts and two 30-inch CMPs. The model concluded that the current 100-year event will result in overtopping of SR 28 at Griff Creek with this current design. FIRMs obtained from Placer County for Griff Creek also indicate the 100-year flow would break out of the channel and flow across SR 28. Road realignment or placements of sidewalks (that are elevated higher than existing conditions) may alter the pattern of the overflow (and increase the size of the 100-year floodplain). (Entrix 2006c.)

Implementation of Alternatives 2, 3, and 4 would involve placement of structures in the 100-year floodplain. The *Location Hydraulic Study* prepared for the proposed action indicates these structures will not be in the direct path of flow and would not impede or redirect flow with implementation of the proposed action (Appendix H). The proposed action will not include any change in the roadway footprint at the Griff Creek crossing and will not change the configuration of the current culverts. The crossing is a multi-barrel culvert, and no changes will be made to this configuration. The highway grade (elevation and profile) will be maintained at this crossing with no change in the post-project condition. Therefore, the culvert hydraulics and overtopping will not change and flood damage risk will remain the same as under existing conditions. Applicable Placer County Design Criteria and Improvement Standards for floodplain construction will also be incorporated by design into the project plans and specifications in compliance with permit requirements. Although no substantial change to the course or flow of 100-year floodwaters is expected, if unanticipated projects occur that result in a substantial change, appropriate applications will be filed with USACE with plans for minimization through appropriate storm water conveyance, control, and treatment facilities.

Impact HYD-3: Exposure of People, Structures, or Facilities to Significant Risk from Flooding, Including Flooding as a Result of the Failure of a Levee or Dam

Alternative 1

Implementation of the no-build alternative would not expose people to flooding from levee or dam failure due to the relative proximity of a levee or dam within the area. However, the no-build alternative could expose people or structures to significant risk from flooding, as the existing culverts under SR 28 at Griff Creek are currently undersized and experience flooding and overtopping of SR 28.

Alternatives 2, 3, and 4

Implementation of Alternatives 2, 3, and 4 would not expose people, structures, or facilities to significant risk from flooding. In addition, Alternatives 2, 3, and 4 involve various improvements to current drainage facilities decreasing the chances of localized flooding in the area.

Impact HYD-4: Creation of or Contribution to Runoff that Would Exceed the Capacity of an Existing or Planned Stormwater Management System

Alternative 1

Current existing drainage facilities are outdated and frequently involve small amounts of flooding and overtopping of the roadways. Implementation of the no-build alternative would result in the continuation of this flooding and overtopping.

Alternatives 2, 3, and 4

Implementation of Alternatives 2, 3, and 4 will increase impervious surfaces (i.e., additional paved surfaces due to the construction of new bike paths, sidewalks, and off-site parking areas) resulting in an increase in stormwater runoff. Buildout of any of the alternatives would increase the amount of impervious surface area by adding cement and asphalt over previously bare ground, which could potentially lead to a change in drainage patterns and would result in more surface runoff during winter storms compared to existing conditions. Stormwater flows based on various precipitation events were

estimated in the Kings Beach Watershed Improvement Project *Final Hydrologic Conditions Report* (Entrix 2006b).

Chapter 2, Alternatives, and Figure 2-3 indicate drainage, collection, conveyance, and treatment improvements will be implemented as part of the WIP to improve water quality in the Kings Beach region and action area. These design features will help to collect, convey, and treat water runoff from the on-street parking sites implemented as part of the proposed action and as well as runoff flowing into the action area from areas upstream of the action area. Moreover, as indicated in *Chapter 2*, the proposed action drainage, collection, conveyance, and treatment facilities that tie into and interface with the WIP improvements would be designed and built to handle these flows at all culverts, crossings, and drainage facilities affected by the proposed action. In addition, all off-street parking lots would be designed with water collection and infiltration features to contain runoff on-site for a 20-year, 1-hour storm flow. These water collection and infiltration features will be incorporated into the off-site parking lots and are designed to minimize runoff associated with the additional hard coverage from the parking lots. Because water would be contained entirely on-site, the off-site lots would not worsen water quality in the region. Consequently, while implementation of the proposed action would increase the quantity of surface runoff due to increased impervious surfaces (i.e., additional paved surfaces due to the construction of new bike paths, sidewalks, and off-site parking areas), the improvements as part of the proposed action will sufficiently handle these increased flows. In addition, improvements associated with the proposed WIP will further increase water treatment capacity.

3.4.4 Mitigation, Avoidance, Minimization, and Compensation Measures

No specific measures related to hydrology are proposed for the action.

3.4.5 Compliance with Tahoe Regional Planning Agency Code

No substantial change to the course or flow of 100-year floodwaters is expected.

3.5 Hazardous Waste/Material

3.5.1 Affected Environment

This section addresses potentially adverse environmental, health, and safety hazards in the action area associated with hazardous or regulated material/waste. This discussion is based upon an initial site assessment (ISA) (Mactec 2006a), which is included in Appendix J. The ISA was performed in conformance with American Society of Testing and Materials (ASTM) Standard E-1527.00 and Caltrans ISA preparation requirements. The purpose of the ISA was to evaluate the potential occurrence of recognized environmental conditions in the proposed action area. Recognized environmental conditions are defined in ASTM E-1527.00 as “the presence or likely presence of any hazardous substance or petroleum product on a property under conditions that indicate an existing release, a past release, or a material threat of a release into structures on the property or into the soil, groundwater or surface water of the property.” Based on the findings of the ISA, a Phase II Site Assessment was conducted to further evaluate the extent of contamination and the likelihood of encountering hazardous materials or contaminated soils during construction. The Phase II Site Assessment, dated October 31, 2006, is presented in Appendix K.

Historical and current aerial photographs were reviewed in preparation of the ISA. Subtle changes in the action area since 1970 were noted from the historical aerial photographs. The action area has had very little redevelopment to structures on individual parcels, which were largely developed during the 1950s and 1960s. Several parcels have had a change in land use, or historically had retail service stations (Appendix J).

As reported in the ISA, soil and groundwater contaminated with petroleum hydrocarbons are known to exist in the action area. The regulatory agency data reviewed in the ISA identified 20 locations for registered underground storage tanks (UST) and aboveground storage tanks (AST), 10 of which are currently listed as active sites. Nine sites identified

in the registered UST and AST list have been identified as having reported release incidents and thus appear on the leaking underground storage tank (LUST) database. These LUST sites are reported to have caused recognized environmental conditions to the soils and/or groundwater in the action area. These sites include:

- Kings Beach Swiss Mart, 8797 North Lake Boulevard;
- Beacon Oil, 8070 North Lake Boulevard;
- Former Kings Beach Texaco, 8755 North Lake Boulevard;
- Fairway Excavating, 8472 Speckled Avenue;
- Ken's Tire Center, 8001 North Lake Boulevard;
- Patterson-Tippin Property, 712 Bear Street;
- Ann's Cottages, 8199 North Lake Boulevard;
- Smith Building (Brook Street Apartments), 8537 Brook Avenue; and
- Ronning Property, 8784 North Lake Boulevard.

Site investigations (Mactec 2006a) did not identify any obvious hazardous environmental conditions that would be encountered during proposed action activities. Other than surface staining in locations where vehicles routinely park, no observations were made of potentially hazardous materials being abandoned, carelessly handled, or stored in the action area. However, based on data collected and other observations made during the ISA, several locations in the proposed action area have the potential to degrade soil and/or groundwater with hazardous substances. These locations consist primarily of existing and historical retail fuel suppliers.

| In addition, a review of case files at the RWQCB was conducted to obtain additional information related to reported LUST sites and UST/AST locations. This review found the following locations in the action area had the potential to affect soil and/or groundwater with hazardous substances:

- TransAm (formerly Beacon) Service Station, 8070 North Lake Boulevard;
- Ken's Tire Center, 8100 North Lake Boulevard;
- Dave's Ski Shop (formerly Kings Beach Mobil), 8299 North Lake Boulevard;
- Subway Store (formerly Arco), 8700 North Lake Boulevard;
- Smith Building (Brook Street Apartments), 8537 Brook Street;
- KFC (formerly Union 76), 8697 North Lake Boulevard;
- Kings Beach Car Wash (formerly Kings Beach Texaco), 8755 North Lake Boulevard;
- Swiss Mart (formerly Kings Beach Chevron), 8797 North Lake Boulevard;
- Ronning UST (formerly service station), 8784 North Lake Boulevard;
- Fairway Excavation, 8472 Speckled Avenue; and
- Lake Tahoe Specialty Stove & Fireplace (formerly dry cleaner business site), 8731 North Lake Boulevard.

These sites are described in detail in Appendix J. All sites with existing and historical retail fuel suppliers adjacent and up gradient (north) of SR 28 in the action area have had the potential for unauthorized petroleum hydrocarbon release(s). Ken's Tire Store and the Swiss Mart sites have documented release and remediation histories. The current Dave's Ski Shop on the northwest corner of SR 28 and Deer Street, and the Kentucky Fried Chicken (KFC) store on the northwest corner of SR 28 and Fox Street, appear to have been retail service stations in historical aerial photographs and database reviews.

Because groundwater moves in a generally southern direction in the action area, retail service stations adjacent to and south of SR 28 are less likely to have affected soils and/or groundwater during historical unauthorized petroleum hydrocarbon release incidents that would be encroached upon during proposed construction activities associated with the proposed action. In other words, it is less likely that the proposed action would encounter release incidents on the south side of SR 28 than on the north side.

The TransAm (formerly Beacon) service station on the west end of the action area is an active groundwater remediation case, with one monitoring well north of the USTs that has reported historical petroleum hydrocarbon contamination. The current Subway store and the Ronning UST site are on the south side of SR 28. These locations are reported historical petroleum retail businesses.

A Phase II Site Assessment was conducted to further evaluate the extent of contamination and the likelihood of encountering hazardous materials or contaminated soils during construction. Soil samples and groundwater samples were collected during this investigation to evaluate the level of contamination in the soil and groundwater that may be encountered during construction.

Yellow traffic markings (thermoplastic and paint) used for traffic striping may include hazardous levels of chromium and lead (lead chromate). Yellow traffic markings that are removed separate from the adjacent pavement may have to be managed as hazardous waste.

Aerially deposited lead (ADL) is known to exist along the California State Highway System. Lead-contaminated soil may exist attributable to the historical use of leaded gasoline. The areas of primary concern in relation to highway facilities are soils along routes that have had high vehicle emissions from large traffic volumes, congestion, or stop-and-go situations, during the time period when leaded gasoline was in use. For practical purposes, most aerially deposited lead from vehicle emissions would have been deposited prior to 1986. If the action area was constructed or reconstructed with clean material after 1986, it is likely that the levels of ADL-contaminated soil are low.

Typically, ADL is found in the top 0.6 meter (2 feet) of material in unpaved areas within the highway ROW. The levels of lead found along the highway ROW typically range from less than 0.5 up to 3,000 milligrams per kilogram (mg/kg) and have been found as high as 10,000 mg/kg total lead, as analyzed by EPA Test Method 6010 or EPA Test Method 7000 series. Caltrans takes samples for ADL analysis at projects that have a peak average daily traffic volume of 10,000 or greater. The presence of ADL requires

that Title 8, Division 1, Chapter 4, Subchapter 4, Section 1532.1, Lead, be addressed. Because the traffic volume for the proposed action exceeds this standard, ADL sampling and analysis are required.

An ADL site investigation was performed by Geocon Consultants, Inc. in 2002. They collected 237 soil samples from boring locations designated by Caltrans in the vicinity of the proposed lane widening improvements. The laboratory analytical data showed that the levels of Total Lead along the project corridor range from 0.06 to 30 mg/l. As stated in the ADL Site Investigation Report, it is appropriate to compare the highest reported total lead values to the EPA Region 9 Preliminary Remediation Gold (PRG) for lead in residential soil. PRGs are used to estimate contaminant concentrations in environmental media (soil, air, and water) that are protective of human health. The California modified PRG for lead in residential soil is 150 mg/kg. The highest calculated upper confidence level (UCL) for lead in the action area is 66 mg/kg, which is less than the California modified PRG for lead of 150 mg/kg. Therefore, lead-impacted soil in the areas investigated does not pose a significant risk to the health of workers performing the construction activities (Geocon 2004).

3.5.2 Regulatory Setting/ Tahoe Regional Planning Agency Thresholds

This section discusses the federal, state, and local policies and regulations that are relevant to the analysis of the proposed action. A *hazardous material* is defined by the California Department of Toxic Substances Control (DTSC) as a material that poses a significant present or potential hazard to human health and safety or the environment if released because of its quantity, concentration, or physical or chemical characteristics (26 *California Code of Regulations [CCR] 25501*). Hazardous materials that would be used during construction activities for the proposed action include diesel fuel and other liquids used in construction equipment. Applicable hazardous material regulations and policies are summarized below.

3.5.2.1 Federal Policies and Regulations

The EPA is the principal federal regulatory agency responsible for the safe use and handling of hazardous materials. Two key federal regulations pertaining to hazardous materials and hazardous wastes are described below. Other applicable federal regulations are contained primarily in *Titles 29, 40, and 49* of the *CFR*.

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety & Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the RCRA, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

3.5.2.2 State Policies and Regulations

California regulations are as stringent or in some instances more stringent than federal regulations. The EPA has granted the state primary oversight responsibility to administer and enforce hazardous materials and waste management programs. State regulations require planning and management to ensure that hazardous materials and wastes are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses that use hazardous materials to prepare a hazardous materials business plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste, but health concerns pertaining to the release of hazardous materials are similar to those relating to hazardous waste.

Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. The office coordinates the responses of other agencies, including the EPA, California Highway Patrol, RWQCBs, air quality management districts, and county disaster response offices.

California Occupational Safety and Health Administration Standards

Worker exposure to contaminated soils, vapors that could be inhaled, or groundwater containing hazardous constituents would be subject to monitoring and personal safety equipment requirements established in the Cal-OSHA regulations in 8 CCR (*Title 8*). The primary intent of the *Title 8* requirements is to protect workers, but compliance with some of these regulations would also reduce potential hazards to non-construction workers and action area occupants because required controls related to site monitoring, reporting, and other activities would be in place.

Other Laws, Regulations, and Programs

Various other state regulations have been enacted that affect hazardous materials and hazardous waste management, including the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), which requires labeling of substances known or suspected by the state to cause cancer, and *California Government Code Section 65962.5*, which requires the DTSC Office of Permit Assistance to compile a list of possible contaminated sites in the state.

State and federal regulations also require that hazardous materials sites be identified and listed in public records. These lists include sites that have been identified through the CERCLIS; National Priorities List for Uncontrolled Hazardous Waste Sites; RCRA; California Superfund List of Active Annual Work plan Sites; and lists of state-registered USTs and LUSTs.

TRPA does not maintain any thresholds for hazardous waste. The TRPA Initial Environmental Checklist asks whether the proposed action will result in the creation of or increased possibility of exposure to health hazards.

3.5.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

Impact HAZ-1: Potential Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials

Alternative 1

Alternative 1 represents the existing roadway configuration, which would remain unchanged into the future. Under Alternative 1, no construction or associated earth moving would occur. It is assumed that the existing conditions would persist under this alternative and that there would be no incremental change in the public's exposure to hazardous waste/material associated with the routine transport, use or disposal of hazardous materials. Alternative 1 would not result in any adverse effects and no mitigation is required.

Alternatives 2, 3, and 4

The proposed action is a roadway and streetscape improvement. Operation of either Alternative 2, 3, or 4 would not involve the routine transport, use, or disposal of hazardous materials in excess of current conditions in the area and surrounding areas. There would be no adverse effects, and no mitigation is necessary.

Impact HAZ-2: Potential Accidental Release of Hazardous Materials into the Environment

Alternative 1

Alternative 1 represents the existing roadway configuration, which would remain unchanged into the future. Under Alternative 1, no construction or associated earth moving would occur. It is assumed that the existing conditions would persist under this alternative and that there would be no incremental change in the public's exposure to

hazardous waste/material because there would be no increase in hazardous material use. Alternative 1 would not result in any adverse effects, and no mitigation is required.

Alternatives 2, 3, and 4

Small quantities of hazardous materials or potentially toxic substances (such as diesel fuel and hydraulic fluids) would be used in the action area during construction. Accidental releases of small quantities of these substances could contaminate soils and degrade the quality of surface water and groundwater, resulting in a public safety hazard. Because of the relatively small volumes of materials on site and the limited duration of construction, the potential for release and exposure is limited.

Should any removal of yellow traffic markings in the existing portion of the roadway occur, it is important to note that they may contain heavy metals such as lead and chromium, which may produce toxic fumes when heated. Mitigation has been identified to reduce the severity of this effect (Mitigation Measure HAZ-1).

Impact HAZ-3: Potential Exposure of Schoolchildren to Hazardous Materials

Alternatives 1 (No Build) and Alternatives 2, 3, and 4

As noted in the *Physical Setting* section above, no schools are located within 0.25-mile of the project site. There would not be any adverse effects, and no mitigation is necessary.

Impact HAZ-4: Potential Exposure of the Public to Contaminated Soils

Alternative 1

Alternative 1 represents the existing roadway configuration, which would remain unchanged into the future. Under Alternative 1, no construction or associated earth moving would occur. It is assumed that the existing conditions would persist under this alternative and that there would be no incremental change in the public's exposure to hazardous waste/material because there would be no increase in hazardous material use. Alternative 1 would not result in any adverse effects, and no mitigation is required.

Alternatives 2, 3, and 4

As discussed above and in detail in the ISA, soil and groundwater contaminated with petroleum hydrocarbons are known to exist in the action area. Proposed construction activities associated with the proposed action may require excavation and dewatering activities in locations where recognized environmental conditions occur. Currently, engineering design for proposed improvements has not been completed. Information reviewed in the preparation of the ISA suggests sufficient subsurface characterization has not been performed on the majority of these identified sites to determine the horizontal and vertical location and concentrations of petroleum hydrocarbon occurrences that may be encountered during construction activities related to the proposed action. Seasonal surface and groundwater movements may substantially relocate petroleum hydrocarbon compounds from the point of origin over time. Inconsistent subsurface conditions, and buried utility corridors, may also contribute to irregular, accelerated, or restricted movements of these compounds through soil and groundwater.

Project features in potential conflict with contaminated soil/groundwater will be eliminated or moved if possible. If conflicts cannot be eliminated, the handling of the contaminated material can be covered in contract special provisions.

No aboveground or underground heating oil tanks were observed during the site visit, nor were any home heating oil tanks identified in data reviewed during this report preparation. However, there is still a potential for the existence of unregistered USTs in the action area that may have been, or are being, used for heating oil storage as many parcels in Kings Beach historically used oil to heat structures. Often, individual heating oil tanks were placed underground on each parcel. However, it is unlikely that any such heating oil tanks are in the ROW.

An ADL investigation was performed to evaluate whether lead attributable to ADL from motor vehicle exhaust exists in the surface and near-surface soils within the action boundaries (Geocon 2004). The investigation collected and analyzed soil samples to determine the highest lead values. The investigation compared the highest reported total

lead values in the action area to the EPA Region 9 preliminary remediation goal (PRG) for lead in residential soil. PRGs are used to estimate contaminant concentrations in environmental media (soil, air, and water) that are protective of human health, including sensitive groups, over a lifetime. The California modified PRG for lead in residential soil is 150 mg/kg. The 2004 ADL investigation determined that the highest calculated upper confidence level (UCL) for lead concentration was 66 mg/kg, which is below the PRG of 150 mg/kg. The analysis concluded that lead in the soil in the area did not pose a significant risk to the health of workers performing the construction activities or to surrounding sensitive receptors.

Known hazardous materials and potentially contaminated soils located in the proposed action area could create a hazard to the public or the environment by creating a potential exposure pathway for the hazardous materials and surrounding residences and sensitive receptors. Soil disturbance could generate windblown particulates that also contain hazardous material. This material could be transported to nearby sensitive receptors or create an increased health risk for construction workers. Disturbance of soils potentially contaminated with hazardous materials could create a short-term exposure through airborne transport and inhalation. Long-term exposure through local waterways could also potentially occur. Mitigation has been identified to reduce the severity of this effect (Mitigation Measure HAZ-2).

Impact HAZ-5: Potential Safety Hazards in an Airport Zone

Alternatives 1 (No Build) and Alternatives 2, 3, and 4

As noted in the *Physical Setting* section above, the proposed action is not located in any of the airport land use planning areas of nearby airports. Therefore, no adverse effects related to potential safety hazards for people residing or working in the action area are anticipated. No mitigation is necessary.

Impact HAZ-6: Potential Conflict with Emergency Response

Alternative 1

As noted in the setting section, the proposed action would not involve any construction and therefore would not result in an incremental change in emergency response.

Therefore, no impacts related to potential emergency response are anticipated, and no mitigation is necessary.

Alternatives 2, 3, and 4

During construction, emergency access to and in the vicinity of the project site could potentially be affected by lane closures, detours, and construction-related traffic.

Mitigation has been identified to reduce the severity of this effect (Mitigation Measure TRA-3).

Impact HAZ-7: Potential Risk of Wild Fire

Alternative 1

As noted in the setting section, the proposed action would not involve any construction and therefore would not result in an incremental change in risk of wild fire. Therefore, no impacts related to potential risks of wild fire are anticipated. There would be no impact.

Alternatives 2, 3, and 4

The urban/rural interface is generally considered an area of concern, as these areas tend to have a large amount of vegetation and, when construction activities are introduced to the area, have the potential to result in wildfires. The proposed action corridor is primarily urban. However, the risk of wild fire could be increased in some parts of the proposed action area. Mitigation has been identified to reduce the severity of this effect (Mitigation Measures HAZ-4 and HAZ-5).

3.5.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Mitigation Measure HAZ-1: Incorporate Measures to Reduce Potential for Accidental Release or Exposure to Hazardous Materials

- If yellow stripe is to be removed, the roadway will be ground in its entirety instead of removing just the yellow paint stripe. If it is not feasible to grind the roadway in its entirety, the removed paint material will be disposed of at a Class 1 disposal facility. If any yellow traffic markings are going to be removed separate from the adjacent pavement, the levels of lead and chromium need to be determined. Common practice has been to determine the levels during construction. Otherwise, a preliminary site investigation (PSI) to determine the concentration of lead chromate should be performed prior to construction. Removal of Yellow Traffic Stripe and Pavement Markings shall be conducted in accordance with Caltrans SSP 15-300 for removal of “Stripe Removal.”
- Potential exposure to chromium and lead from traffic striping will be minimized. A project-specific Lead Compliance Plan approved by an industrial hygienist certified in comprehensive practice by the American Board of Industrial Hygiene to prevent or minimize worker exposure to lead in accordance with the *CCR Title 8, Section 1532.1 (Title 8, “Lead”)* will be implemented. Before performing work in areas containing lead, personnel who have no prior training, including state personnel, will complete a safety training program, including use of personal protective equipment and washing facilities, as required by *Title 8, “Lead.”* In addition, an EPA hazardous waste generator identified number (EPA ID#) is to be obtained for this project and is to be included on the labels of any containers holding hazardous waste.
- Any removed yellow thermoplastic and yellow painted traffic stripe and pavement marking residue will be stored and labeled in covered containers in a secured enclosure at a location within the project limits for no more than 90 days until disposal. Labels will conform to the provisions of *CCR Title 22*. Labels will be marked with the date when the waste is generated, the words

Hazardous Waste, composition and physical state of the waste (for example, asphalt grindings with thermoplastic or paint), the word *Toxic*, the name and address of the Placer County project Resident Engineer (RE), the RE's telephone number, contract number, and Contractor or subcontractor. The containers will be a type approved by the U.S. Department of Transportation for the transportation and temporary storage of the removed residue. The containers will be handled so that no spillage will occur. Removed yellow thermoplastic and yellow paint will be disposed of at a Class 1 disposal facility in conformance with the requirements of the disposal facility operator. Testing will include, at a minimum, (1) total lead and chromium by EPA Method 7000 series, (2) soluble lead and chromium by California Waste Extraction Test, and (3) soluble lead and chromium by the Total Characteristic Leaching Procedure. If the yellow thermoplastic and yellow-painted traffic stripe and pavement-marking residue is transported to a Class 1 disposal facility as a hazardous waste, a manifest will be used, and the transporter will be registered with the DTSC.

- If the project involves any structure modifications, such as widening or demolition, asbestos and lead based-paint surveys will be performed prior to construction. The asbestos surveys must be performed by qualified Asbestos Hazard Emergency Response Act (AHERA)/Cal-OSHA certified asbestos inspector, and a lead based-paint survey will be performed by a California Department of Health Services (DHS) certified inspector/assessor.
- Placer County is to provide records regarding any contamination encountered in regards to this project, to any appropriate requesting party, concerning any investigation as to the extent of any such contamination. An appropriate requesting party includes, but is not limited to, the LRWQCB, Placer County HHS-Environmental Health, any responsible party or potentially responsible party, or the designated environmental consultant to any responsible party or potentially responsible party.

- All encountered soil and groundwater impacted with petroleum hydrocarbons must be managed (see Mitigation Measure HAZ-2 for management of soil and Mitigation Measures WQ-1 and WQ-2 for management of groundwater).

Mitigation Measure HAZ-2: Implement Measures to Reduce Potential Exposure to Contaminated Soils

- Project features in potential conflict with contaminated soil/groundwater will be eliminated or moved if possible. If conflicts cannot be eliminated, the handling of the contaminated material can be covered in contract special provisions. If encountered, all soil and groundwater impacted with petroleum hydrocarbons and/or all solvents must be removed, managed and disposed of properly, as hazardous waste or as non-hazardous waste or as a non-hazardous waste disposed to a receiving landfill facility. This will apply to excavated soil as well as groundwater or water resulting from dewatering activities. Impacted soil is not to be used as backfill. Impacted soil and groundwater encountered during this project are to be removed to the fullest extent feasible, within areas of the project that are accessible to Placer County (i.e., public ROWs, under the control of Placer County or Caltrans).
- A Phase II Site Assessment was prepared and areas with elevated levels of petroleum hydrocarbons were identified through soil and groundwater sampling. Prior to performing any excavation work at the location containing material classified as petroleum-impacted, all personnel, including state personnel, will complete a safety training program that meets requirements of the Contractor's Health and Safety Work Plan covering the potential hazards as identified. The Contractor will provide the training and a certification of completion of the safety-training program to all personnel.
- During excavation activities, monitoring will be conducted for any suspected petroleum hydrocarbons contamination with a photo ionization detector, combustible gas meter, or similar equipment approved by Caltrans. The Consultant must be present to on site to identify any impacted

soil/groundwater. If any suspected contaminated materials are encountered, work will immediately stop, and the suspected contamination will be managed appropriately. If contamination is confirmed, the Contractor will prepare a detailed Health, Safety and Work Plan for all site personnel in accordance with the DTSC and Cal-OSHA regulations. The Health, Safety and Work Plan will include a plot plan indicating the exclusion zones and clear zones as defined by *CCR, Title 26*, a schedule of procedures, sampling and testing procedures, and physical barrier; and will be submitted at least 10 working days prior to beginning any excavation for review and acceptance by the RE. Prior to submittal, the Contractor will have the Health, Safety and Work Plan approved by a civil engineer registered in the State of California and by an industrial hygienist certified by the American Conference of Governmental Industrial Hygienists (ACGIH).

- In the event suspected contaminated materials are encountered, the Contractor will stop work in the affected area and notify the RE immediately. The Contractor, or the Contractor's listed environmental subcontractor, will prepare, and submit for approval, a Site Safety Plan consistent with the requirements of *29 CFR 1910.120*. The contractor will be required to comply with the provisions of the approved Site Safety Plan during construction.
- Any construction that is found to hinder any ongoing/future remediation needs to be reviewed/modified so as to not hinder the remediation.

Mitigation Measure HAZ-3: Require Spark-Generating Construction Equipment be Equipped with Manufacturers' Recommended Spark Arresters

Placer County will require contractors to fit any construction equipment that normally includes a spark arrester with an arrester in good working order. Subject equipment includes, but is not limited to, heavy equipment and chainsaws. Implementation of this measure will minimize a source of construction-related fire.

Mitigation Measure HAZ-4: Clear Materials That Could Serve as Fire Fuel from Areas Slated for Construction Activities Before Construction Begins

If dry vegetation or other fire fuels exist on or near staging areas, welding areas, or any other area on which equipment will be operated, contractors will clear the immediate area of fire fuel. To maintain a firebreak and minimize the availability of fire fuels, Placer County will require contractors to maintain areas subject to construction activities clear of combustible natural materials to the extent feasible. To avoid conflicts with policies to preserve riparian habitat, areas to be cleared will be identified with the assistance of a qualified biologist.

Mitigation Measure TRA-3: Implement Construction Traffic Management Plan during Construction

This mitigation measure is described in *Section 3.6, Traffic*.

3.5.5 Compliance with Tahoe Regional Planning Agency Code

TRPA does not maintain thresholds or codes for hazardous waste. The proposed action will include the provisions listed above to ensure that any potential exposure to health hazards is minimal.

3.6 Traffic

The following discussion summarizes the existing traffic, pedestrian, and bicyclist conditions and the regulatory environment, as well as an analysis of direct and indirect environmental effects of the proposed action. Where feasible, mitigation measures are recommended to reduce the severity of identified impacts. A complete traffic report, providing additional methodology and results of the traffic analysis, is provided in *Kings Beach Urban Improvement Project Traffic Report* (Appendix L).

3.6.1 Affected Environment

3.6.1.1 Existing Roadways

Roadways in the action area can be characterized as follows:

- SR 28 is the major roadway serving Lake Tahoe's North Shore, linking Kings Beach with Incline Village, Nevada, to the east and Tahoe Vista and Tahoe City, California, to the west. In the vicinity of the site, SR 28 is a four-lane facility with two lanes of travel in each direction. East of Kings Beach and west of Tahoe Vista, SR 28 is a two-lane facility. The posted speed limit on this segment of SR 28 is 48 kilometers per hour (kph) (30 miles per hour [mph]).
- SR 267 is a two-lane highway running in a general northwest-southeast alignment between Interstate 80 in Truckee and SR 28 in Kings Beach. This highway consists of two travel lanes with a speed limit of 89 kph (55 mph) in the rural sections.
- Local streets in the Kings Beach area consist of a grid of north-south streets mostly named after mammals (such as Chipmunk Street, Fox Street, Coon Street, Bear Street, and Deer Street) that are intersected by east-west streets mostly named after fish species (such as Speckled Avenue, Dolly Varden Avenue, Trout Avenue, and Brook Avenue). These Placer County roadways all provide a single travel lane in each direction.

daytime trolley operating every half hour between Tahoe Vista and Crystal Bay and an evening trolley operating every hour between Squaw Valley and Incline Village. In addition, the Town of Truckee's service contractor offers daytime hourly service in winter between Kings Beach and Northstar-At-Tahoe (with connecting service to Truckee). Transit stops are provided along both sides of SR 28 near Secline Street, Bear Street, Coon Street, Fox Street, and Chipmunk Street. In addition, there is a westbound stop near Deer Street.

3.6.1.4 Existing Traffic Data

Historical Traffic Volumes

Historical traffic volumes along SR 28 near the study area were obtained from *Traffic Volumes on California State Highways* (California Department of Transportation 1992, 2002) and are presented in Table 3.6-1. As shown, Peak Month Average Daily Traffic (PMADT) volumes range as high as 24,100 vehicles per day on SR 28 (just east of SR 267). The peak month of traffic in the action area typically occurs in July. Annual Average Daily Traffic (AADT) volumes have increased at a rate higher than the growth in PMADT volumes in the area. On SR 28 between SR 267 and Coon Street, AADT increased by 2,000 vehicles between 1992 and 2002, while PMADT volumes actually declined by 100. Although this drop in PMADT is reported for SR 28 west of Coon Street, PMADT increased by 600 vehicles per day between 1992 and 2002 for the segment of SR 28 east of Coon Street. Except for SR 28 east of SR 267 and SR 267 over Brockway Summit, peak-hour traffic volumes were reported to decline on the state highways between 1992 and 2002.

Traffic data for years prior to 1992 is also useful in providing a context to traffic issues in the community. Caltrans District 3 data for PMADT traffic volume counts on SR 28 to the east of SR 267 indicates that volumes were 18,100 in 1970, 20,500 in 1975, 29,000 in 1980, 23,700 in 1985, and 24,100 in 2002. This data indicates that current volumes are roughly 17% below the peak recorded volumes, which were observed in 1980.

SR 28 Hourly Count Data

Extensive summer traffic volume data along SR 28 was collected in 2002 at the Caltrans count station located on SR 28 just to the east of SR 267. There is a strong weekly variation in traffic volumes, with the highest traffic volumes typically observed on Saturdays or Sundays, and the lowest volumes observed on Monday or Wednesday. The highest total traffic volumes were recorded on the first Friday in July, with a total two-direction traffic volume of 32,708. There is a strong eastbound traffic flow on Friday afternoon/evening, which can be assumed to consist largely of drivers traveling to Incline Village for the weekend. Volumes on Saturday reach high levels roughly between 10 a.m. and 6 p.m., with slightly higher volumes in the westbound direction than the eastbound direction. On Sunday, there is a strong mid-day peak in traffic volumes in the westbound direction, which probably largely reflects motorists leaving the Incline Village area at the end of the weekend. Data is also available from Caltrans counts for winter conditions on SR 28 east of SR 267. A review of this data indicates that the peak eastbound volumes are comparable to the summer 30th-highest volumes, though peak westbound volumes are substantially lower in winter than in summer. This data indicates that the peak hour of observed winter traffic activity occurred on Friday, January 3, between 4:00 PM and 5:00 PM, when a total of 2,124 vehicles were observed (1,174 eastbound and 950 westbound).

SR 28 Intersection Turning Movement Volumes

Summer counts conducted by Caltrans staff in the late 1990s, a winter count conducted by LSC staff at SR 28/SR 267 in January 2003, and Caltrans count data along SR 28 were used to develop a consistent set of intersection turning movement volumes. *A Policy on Geometric Design of Highways and Street* (American Association of State Highway and Transportation Officials 2003) indicates that “[t]he design hourly volume for rural highways ... should be generated by the 30th-highest volume of the future year chosen for design”. As this traffic level corresponds closely with peak-hour volumes observed on a busy Saturday in August, the peak-hour of a busy Saturday in August was used as

Table 3.6-1. 1992–2002 Caltrans Traffic Counts on State Routes in Kings Beach Area

		1992 2-Way Traffic Volumes			2002 2-Way Traffic Volumes			Annual 1992–2002 Change		
		Average Annual Daily	Peak Month Average Daily	Peak Hour	Average Annual Daily	Peak Month Average Daily	Peak Hour	Average Annual Daily	Peak Month Average Daily	Peak Hour
28	West of SR 267 in Tahoe Vista	16,800	23,900	2,200	18,100	23,700	2,250	0.75%	-0.08%	0.22%
28	East of SR 267 in Kings Beach	17,100	24,200	2,100	19,100	24,100	2,050	1.11%	-0.04%	-0.24%
28	East of Coon St. in Kings Beach	13,200	18,800	1,700	15,100	19,400	1,650	1.35%	0.31%	-0.30%
267	South of Northstar Drive	6,700	8,800	920	8,100	9,900	1,150	1.92%	1.18%	2.26%
267	North of North Avenue	7,800	10,500	1,000	8,500	10,800	800	0.86%	0.28%	-2.21%
267	North of SR 28	8,000	11,100	1,000	9,200	11,900	880	1.41%	0.70%	-1.27%

Source: California Department of Transportation 1992, 2002.

the summer analysis period for this study. A similar process was used to develop winter design volumes.

Traffic Volumes on Local Kings Beach Roadways

In the summer of 2002, Placer County DPW conducted a series of intersection and road tube traffic counts throughout the county roadway network in Kings Beach. This count data indicates that there is little existing “cut through” traffic between SR 28 and SR 267, as evidenced in particular by the volumes on Speckled Avenue and Dolly Varden Avenue at SR 267, which are consistent with the level of land use development served by the internal streets. Not surprisingly, existing traffic volumes on the local streets are highest near SR 267 and particularly near SR 28. Volumes on north-south streets drop substantially north of the first two blocks off of SR 28. Coon Street has the greatest traffic activity of any of the local streets, particularly in the southbound direction. This reflects the relative ease of access to SR 28 provided by the existing traffic signal.

Existing Pedestrian/Bicycle Activity Counts

Recent summer counts of pedestrian and bicycle activity in the Kings Beach area observed up to 44 pedestrians per hour walking along the north side of SR 28 and up to 71 along the south side. Existing bicycle activity of up to 19 and 29 cyclists per hour were observed on the north side and south side of the highway, respectively. The data indicates that existing pedestrian crossing volumes for SR 28 are highest at Bear Street (with the probable exception of Coon Street, for which no data is available), with 144 pedestrians and one cyclist crossing the state highway in the peak observed summer hour. As these counts were limited to specific days, they may not reflect actual peak levels of activity.

Winter pedestrian and bicycle counts in the study area were conducted over the 2004 winter holiday period. These indicate that no more than five pedestrians per hour cross SR 28 at any one intersection, while a maximum of 11 pedestrians per hour were observed to cross SR 28 mid-block (between public road intersections) along any one block. Winter pedestrian activity along SR 28 was highest at Coon Street, with 27

pedestrians walking along the north side of the highway and two along the south side. Bicycle activity was also relatively low in the winter, with a maximum of three cyclists per hour observed along any one block.

Existing Intersection Level of Service

The Highway Capacity Software programs were used to identify the existing LOS at the various intersections.

LOS is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported qualitatively on a scale from A to F, with A representing the best performance and F the worst. Tables 3.6-2 and 3.6-3 relate the operational characteristics associated with each level of service category for signalized and unsignalized intersections, respectively.

Table 3.6-2. Signalized Intersection LOS Criteria

Level of Service	Description	V/C Ratio*
A	Stable flow—Very slight or no delay. Conditions are such that no approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.	0.00–0.60
B	Stable flow—Slight delay. An occasional approach phase is fully utilized.	0.61–0.70
C	Stable flow—Acceptable delay. A few drivers arriving at the end of a queue may have to wait through one signal cycle.	0.71–0.80
D	Approaching unstable flow—Tolerable delay. Delay may be substantial during short periods, but excessive back ups do not occur.	0.81–0.90
E	Unstable flow—Intolerable delay. Delay may be great—up to several signal cycles. Long queues form upstream of intersection.	0.91–1.00
F	Forced flow—Excessive delay. Volumes vary widely, depending on downstream queue conditions.	> 1.00

* V/C = volume to capacity ratio.

Source: Circular 212 Interim Materials on Highway Capacity (Transportation Research Board, January 1980).

The analysis of roadway LOS and traffic volumes used the *Highway Capacity Manual* (2000) methodology for urban arterials was applied. Under this methodology, LOS is a measure of total travel speed through the corridor.

Table 3.6-3. Level of Service Definitions for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	<10.0
B	10.1–20.0
C	20.1–35.0
D	35.1–55.0
E	55.1–80.0
F	>80.0

Source: Transportation Research Board 2000.

For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the *Highway Capacity Manual* (Transportation Research Board 2000) methodology was utilized. With this method, operations are defined by average control delay per vehicle (measured in seconds) for each stop-controlled movement. This incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. For side-street stop-controlled intersections, delay for the worst movement is reported. Table 3.6-4 summarizes the relationship between delay and LOS for unsignalized intersections.

Table 3.6-4. Relationship between Delay and LOS for Unsignalized Intersections

Level of Service	Description	Average Control Per Vehicle (seconds)
A	Little or no delays	<10.0
B	Short traffic delays	>10.0 to 15.0
C	Average traffic delays	>15.0 to 25.0
D	Long traffic delays	>25.0 to 35.0
E	Very long traffic delays	>35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	>50.0

Source: Transportation Research Board 2000.

For roundabout intersections, the SIDRA method was utilized. With this method, operations are defined by average control delay per vehicle (measured in seconds) for each movement. This incorporates delay associated with deceleration, acceleration, merging, and moving through the roundabout.

As indicated in Table 3.6-5, the existing signalized SR 267/SR 28 intersection operates at an adequate LOS of C in the summer design period, while the SR 28/Coon Street intersection operates at LOS B. The unsignalized Secline, Bear, Fox and Chipmunk Street intersections, however, operate at LOS F (very long delays) for the worst approach (the side street approaches to SR 28), while the worst approach operates at LOS D at Deer Street and LOS E at Chipmunk Street. In winter, the existing signalized SR 267/SR 28 intersection operates at an adequate LOS of D in the winter design period while the SR 28/Coon Street intersection operates at LOS A. However, the unsignalized Secline, Bear, and Fox Street intersections operate at LOS F for the worst approach (the side street approaches to SR 28), while the worst approach operates at LOS C at Deer Street and LOS D at Chipmunk Street.

Table 3.6-5. Existing Summer Design Peak Hour Intersection Levels of Service

SR 28 at:	Existing Traffic Control	Worst Approach		Total Intersection	
		Delay s/veh	LOS	Delay s/veh	LOS
SR 267	Signal	–	–	27.5	C
Secline Street*	Two-Way Stop Controlled	536.0	F	–	–
Deer Street	Two-Way Stop Controlled	27.5	D	–	–
Bear Street*	Two-Way Stop Controlled	169.0	F	–	–
Coon Street	Signal	–	–	10.1	B
Fox Street	Two-Way Stop Controlled	178.7	F	–	–
Chipmunk Street	Two-Way Stop Controlled	41.4	E	–	–

Note:

* Although none of the minor street southbound approaches are striped with separate right-turn lanes, the southbound approaches to the Secline and Bear Street intersections are wide and used as if there are separate right-turn lanes. Therefore, the LOS at these two intersections was calculated assuming separate right-turn lanes on the southbound approaches.

Existing Traffic Safety

Table 3.6-6 presents a summary of accident history along SR 28 in Kings Beach for an 8.75-year period (April 1, 1996 through December 31, 2004). Per standards of the Caltrans Headquarters Highway Safety Investigations Branch, accidents within 250 feet of an intersection are assigned to the intersection. As indicated, a total of 259 accidents were recorded over this period, of which 70 resulted in injuries, one resulted in a fatality, and the remainder resulted in property damage only. The highest number of accidents occurred at the SR 28/Deer Street intersection (44 total accidents, or an average of 4.9 accidents per year), followed by 36 at the SR 28/Fox Street intersection, 35 at the SR 28/Secline Street intersection, and 34 at the SR 28/SR 267 intersection. For the roadway segments away from the intersections, the segment of SR 28 between Secline Avenue and Deer Street had the highest number of accidents (11). By type, the largest proportion were broadside accidents (90), which is a relatively hazardous type of accident, followed by rear-end accidents (78) and sideswipes (40). Fourteen pedestrian accidents were recorded, including the single fatality, as well as eight bicycle accidents.

Within the last few years, several serious accidents have occurred within the Kings Beach commercial core area along SR 28.

Accident rates for intersections were compared by dividing the number of accidents by the estimated total Million Vehicle (MV) movements over the data period, while accident rates for roadway segments were compared by dividing the number of accidents by the estimate total Million Vehicle-Miles (MVM). As shown in the table, the intersection accident rates were relatively high for the SR 28/Deer Street and SR 28/Secline Street intersections. Roadway segment accident rates were relatively high between Secline and Deer Streets and between Coon and Fox Streets. Finally, these rates can be compared against California statewide averages for similar types of facilities in rural areas, as presented in *2003 Collision Data on California State Highways* (California Department of Transportation 2005). As indicated in the far right portion of the table, the two signalized intersections at SR 28/SR 267 and at SR 28/Coon Street had relatively low rates, at 69% and 66% the statewide average, respectively. However, accident rates (both total and injury) exceeded the statewide average at all roadway segments and other intersections. For injury and fatal accidents, the statewide average is exceeded at the SR 28 intersections at Secline, Deer, and Fox Streets and along the segment between Coon and Fox Streets. In particular, the total rate at the Deer and Fox Street intersections exceeded the statewide average by at least a factor of three. While some of this increased rate can be attributed to snow conditions (as the majority of intersections statewide are below the snow line), the greater factors are probably excessive speeding and the difficulties of judging an acceptable gap in traffic on a four-lane roadway in high volume conditions. Accident data from January 2001 to January 2006 indicates that 80.5% of all accidents in the action area occurred on dry surfaces, while 11.8% occurred while the road surface was snow or icy (California Department of Transportation 2005).

Table 3.6-6. Accident History

SR 28 Intersection	MP	Total Accidents		Fatalities		Injuries		Estimated MVM	Accident Rate/MVM		Average California Statewide Rate per MVM (1)			% of Statewide Average	
		N	P	N	P	N	P		T	I	T	I	F	T	I
Location of Accident															
Junction 267	9.340	34	13.10%	0	0.0%	8	3.8%	71.2	0.48	0.11	0.7	0.32	0.01	69%	35%
Secline Street	9.430	35	13.50%	0	0.0%	8	3.9%	62.1	0.56	0.13	0.22	0.09	0	255%	137%
Midblock		11	4.20%	0	0.0%	1	1.2%	3.6	3.06	0.28	1.2	0.6	0.03	255%	47%
Deer Street	9.585	44	17.00%	0	0.0%	11	4.9%	59.6	0.74	0.18	0.22	0.09	0	336%	197%
Midblock		4	1.50%	0	0.0%	1	0.4%	2.3	1.72	0.43	1.2	0.6	0.03	143%	72%
Bear Street and Brook Street	9.720	22	8.50%	0	0.0%	3	2.4%	61.4	0.36	0.05	0.33	0.15	0.01	109%	33%
Midblock		7	2.70%	0	0.0%	2	0.8%	3.6	1.93	0.55	1.2	0.6	0.03	161%	92%
Coon Street	9.880	28	10.80%	0	0.0%	11	3.1%	60.8	0.46	0.18	0.7	0.32	0.01	66%	57%
Midblock		7	2.70%	0	0.0%	3	0.8%	2.7	2.61	1.12	1.2	0.6	0.03	218%	187%
Fox Street	10.025	36	13.90%	1	0.0%	13	4%	54.5	0.66	0.24	0.22	0.09	0	300%	255%
Midblock		6	2.30%	0	0.0%	2	0.7%	4.9	1.21	0.4	1.2	0.6	0.03	101%	68%
Chipmunk Street	10.215	11	4.20%	0	0.0%	3	1.2%	51.1	0.22	0.06	0.22	0.09	0	100%	63%
Beaver Street	10.263	13	5.00%	0	0.0%	3	1.4%	50.8	0.26	0.06	0.22	0.09	0	118%	63%
9-Year Total		259	100.0%	0	0.0%	70	28.8%								
Year of Accident															
1996 (Apr–Dec)	–	16	6.2%	0	0.0%	1	–								
1997	–	23	8.9%	0	0.0%	6	–								
1998	–	21	8.1%	0	0.0%	6	–								
1999	–	38	14.7%	0	0.0%	11	–								
2000	–	28	10.8%	0	0.0%	7	–								
2001	–	33	12.7%	0	0.0%	11	–								

Table 3.6-6. Continued

SR 28 Intersection	MP	Total Accidents		Fatalities		Injuries		Estimated MVM	Accident Rate/MVM		Average California Statewide Rate per MVM (1)			% of Statewide Average	
		N	P	N	P	N	P		T	I	T	I	F	T	I
2002	—	34	13.1%	0	0.0%	12	—								
2003	—	35	13.5%	0	0.0%	8	—								
2004	—	31	12.0%	0	0.0%	8	—								
9-Year Total	—	259	100.0%	1	0.0%	70	—								
Type of Collision															
Head-On	—	9	3.5%	0	0.0%	4	1%								
Sideswipe	—	40	15.4%	0	0.0%	5	4.4%								
Rear-End	—	78	30.1%	0	0.0%	21	8.7%								
Broadside	—	90	34.7%	0	0.0%	18	10%								
Hit Object	—	12	4.6%	0	0.0%	2	1.3%								
Auto/Pedestrian	—	14	5.4%	1	0.0%	13	1.6%								
Auto/Bicycle	—	8	3.1%	0	0.0%	7	0.9%								
Other	—	8	3.1%	0	0.0%	0	0.9%								
9-Year Total	—	259	100.0%	1	0.0%	70	28.8%								

Notes:

MVM = Million Vehicle Movements through the intersection

MP = Milepost

N = Number

P = Percent

T = Total

I = Injury

F = Fatality

Source: Caltrans District 3 TASAS Table B Accident Records (April, 1996 through December 31, 2004), and "2003 Accident Data on California State Highways (Caltrans).

3.6.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

3.6.2.1 California Department of Transportation

Caltrans roadway standards are identified in the *State Route 28 Transportation Concept Report* (California Department of Transportation 1997a). The “concept LOS” identified for SR 28 is LOS F. As the TRPA standards are more restrictive than this level, the TRPA standards are pertinent to this study.

A signal warrant analysis was performed based upon Caltrans standards, as Caltrans has jurisdiction along SR 28. The *California Supplement to the Manual on Uniform Traffic Control Devices* (California Department of Transportation 2006) signal warrants were used to assess the appropriateness of the traffic control devices (either signal or roundabout) proposed in the two alternatives. Although there are no adopted warrants for installation of a roundabout, the signal warrants are assumed to be pertinent guidance regarding the placement of a roundabout because both signals and roundabouts are intended as traffic control devices. Levels of service at signalized and stop sign controlled intersections were evaluated using the Highway Capacity Software package. Per Caltrans requirements, SIDRA (Version 3.1) was used to evaluate roundabout LOS. Based on all available information and forecasts, if it is determined that a traffic control device is proposed at a location that does not meet minimum signal warrants, this would be considered an adverse effect.

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

3.6.2.2 Placer County

Placer County DPW has indicated that the maximum preferred traffic volume along a largely residential local street (like the majority of Kings Beach's "internal" streets) to be 2,000 to 3,000 vehicles per day for streets serving residential zoning of 0.10 hectare (0.25 acre) or less with front-on lotting. Although lots in Kings Beach were originally laid out to front on the east-west streets, housing has developed that fronts onto every north-south street as well. Considering the narrow pavement width, density of development, lack of sidewalks, and necessity for pedestrians in winter to walk in the travel lanes, a standard of 3,000 vehicles per day is considered for local streets in Kings Beach for purposes of this analysis. A project that causes daily traffic levels to exceed this volume or exacerbates no-project levels exceeding this value will be considered an adverse effect.

3.6.2.3 Kings Beach Community Plan

Each alternative is reviewed for consistency with existing adopted *Kings Beach Community Plan* goals and policies. In addition, the impact of these alternatives on nonauto travel modes (pedestrian, bicyclist and transit) is evaluated. Any existing adopted goals, policies, or plans that the roadway alternatives would make infeasible to achieve would be identified as an adverse effect.

3.6.2.4 Tahoe Regional Planning Agency

The TRPA standard is to achieve LOS D or better at signalized intersections, with up to 4 hours per day at LOS E allowed. "LOS" is measured on a scale of LOS A (free-flow conditions with little or no delay) to LOS F (stop-and-go congestion); more detailed descriptions of the individual levels of service are provided in the traffic report. In summer, traffic volumes on SR 28 in Kings Beach vary over the day such that volumes

on the fifth-highest hour are frequently within 10% of the peak volume, indicating that LOS E conditions could exist during more than 4 hours if the peak-hour LOS is E. For summer conditions, therefore, a peak-hour LOS standard of D is applied. However, the hourly winter traffic data indicates that the fifth-highest hourly volume is well below the peak-hour volumes; therefore, a peak-hour LOS of E is used in this study as the standard for winter conditions. While TRPA does not have specific standards for roundabouts, the TRPA LOS standards for signalized intersections are assumed to apply. TRPA also has no standards specific to unsignalized intersections, though intersection approaches with LOS F conditions are typically considered to be a concern by TRPA staff. (Cornell pers. comm.). Finally, roadway traffic volumes providing LOS F conditions in any one-hour or more than 4 hours per day of LOS E conditions (between 90 and 100% of roadway capacity) will be considered to exceed standards.

3.6.3 Environmental Consequences (Permanent, Temporary, Direct, Indirect)

3.6.3.1 Study Methods and Procedures

Future traffic conditions are evaluated for the first year that the potential roadway modifications could be in place (2008) and for twenty years beyond this first year (2028). The methodology used to forecast traffic volumes for this analysis is presented in full in the *Kings Beach Urban Improvement Project Traffic Report* (Appendix L). In short, because there is currently no available computer travel-demand forecasting model of future traffic conditions in the TRPA area (Norberg pers. comm.), it was necessary for the purposes of this analysis to generate new forecasts. Forecasts for 2008 were generated by reviewing annual traffic trends between 1992 and 2002 (0.31% per year on SR 28, and 0.70% per year on SR 267) and applying these rates to the observed 2002 traffic volumes. As a regional traffic model is not available, and consistent with standard traffic engineering practice, 2028 forecasts reflect “buildout” of all adopted land use plans that could substantially impact study area traffic volumes; these land use plans are as follows:

- The community plans for the Kings Beach Commercial area, the Kings Beach Industrial area, Crystal Bay, Incline Village, Tahoe Vista, Carnelian Bay, Tahoe City, and Martis Valley;
- The Town of Truckee 1995 General Plan; and
- Buildout of other available residential development outside of the community plan areas within the Tahoe Basin.

In addition, a volume increase associated with growth in “through” traffic (not stopping anywhere within the various plan areas) was included. Finally, the limitation that the existing Crystal Bay pedestrian signal would have on traffic through Kings Beach was evaluated. Assuming this signal will remain in the future (with timing modified to reduce traffic delays), it would “cap” traffic volumes in 2028 (but not in 2008); this effect was used to adjust the 2028 traffic volume forecasts.

The resulting forecast were then evaluated using standard traffic engineering methodologies, as provided in the *Highway Capacity Software* program for signalized and stop sign controlled intersections and in the *SIDRA 3.1* computer program for roundabouts. Table 3.6-7 includes a summary of LOS conditions under the various alternatives.

As discussed in Chapter 3, up to 220 new parking spaces will need to be provided in off-street lots or along local roadways near SR 28 to mitigate loss of parking along or accessed from SR 28. It is not presently possible to conduct a detailed evaluation of the traffic impacts associated with this shift in parking on local streets or the local street intersections with SR 28 because the specific locations of replacement parking have not been identified by the project proponent. Some of the potential new parking lots are accessed directly off of SR 28 and thus would not add to traffic volumes on the local streets. Conservatively, ignoring that some traffic is already generated on local streets due to drivers using the local streets to turn around to enter or exit on-street parking, assuming that 60% of the future replacement spaces require travel on the local streets,

Table 3.6-7. Summary of Alternative Traffic Level of Service Impacts

Existing			2008				2028			
			A1	A2	A3	A4	A1	A2	A3	A4
SR 28 Summer Intersection LOS¹										
SR 267	C		C	C	C	C	F ²	F ²	F ²	F ²
Secline Street	F		F	F	F	F	F	F	F	F
Deer Street	D		E	E	E	E	F	F	F	F
Bear Street	F		F	B	A	B	F	F	B	F
Coon Street	B		A	B	A	B	D	F	D	F
Fox Street	F		F	F	F	F	F	F	F	F
Chipmunk Street	E		E	F	E	F	F	F	F	F
SR 28 Winter Intersection LOS¹										
SR 267	D		D	C	D	C	F ²	F ²	F ²	F ²
Secline Street	F		F	F	F	F	F	F	F	E
Deer Street	C		C	D	C	D	F	F	F	F
Bear Street	F		F	B	A	B	F	F	B	F
Coon Street	A		A	B	A	B	D	F	D	F
Fox Street	F		F	E	F	E	F	F	F	F
Chipmunk Street	E		D	C	D	C	F	F	F	F
Summer Roadway LOS										
Peak Direction LOS	B		B	F	B	F	E	F	E	F
TRPA LOS Standard Exceeded?	EB	No	No	Yes	No	Yes	No	Yes	No	Yes
	WB	No	No	Yes	No	Yes	No	Yes	No	Yes
Days per Year TRPA LOS Standard Exceeded	EB	0	0	10	0	10	0	104	0	104
	WB	0	0	5	0	5	0	108	0	108
Days per Year With 1 or More Hour of LOS F	EB	0	0	10	0	10	0	104	0	104
	WB	0	0	5	0	5	0	108	0	108
Hours per Year of LOS F	EB	0	0	28	0	28	0	670	0	670
	WB	0	0	15	0	15	0	774	0	774
Maximum Hours per Day of LOS F	EB	0	0	7	0	7	0	11	0	11
	WB	0	0	6	0	6	0	11	0	11
Winter Roadway LOS										
Peak Direction LOS	B		B	F	B	E	E	F	E	F
TRPA LOS Standard Exceeded?	EB	No	No	Yes	No	No	No	Yes	No	Yes
	WB	No	No	Yes	No	No	No	Yes	No	Yes
Hours per Peak Day LOS F	EB	0	0	3	0	0	0	3	0	3
	WB	0	0	1	0	0	0	1	0	1
Maximum Daily Traffic Volume on Residential Streets		2000	2000	2000	2000	2000	2800	5400 ³	2800	5400 ³

Notes:

¹ Total intersection LOS for signalized intersection, worst approach LOS for roundabout and stop sign controlled.

² Unmitigated. With separated WB right-turn lane, LOS D provided.

³ To better understand how this volume would change the character of the street, it is worthwhile to consider traffic levels on a per-minute basis. Considering both the traffic diverted off of SR 28 by congestion as well as the traffic generated by the neighborhood, 5,400 vehicles per day of non- would equate to roughly 9 vehicles per minute during the busiest traffic hour of the day (total of both directions, based on a typical 10 percent of daily traffic occurring in the peak hour), or one vehicle every 6 or 7 seconds.

and applying a turnover rate per parking space of 7 vehicles per day and 0.5 vehicles per peak-hour, the shift in parking would generate roughly 1,850 additional one-way vehicle-trips over the course of a day on local streets and 132 in the peak-hour.

These trips, however, would be distributed over all local streets accessing the potential lots, which can be expected to consist of Deer, Bear, Coon, Fox, and Chipmunk Streets, along with the segments of the east-west streets within two blocks of the state highway. A reasonable planning assumption is that any one street segment would not carry more than one-third of this total traffic, or roughly 620 daily trips or 44 peak-hour trips (total of both directions). In light of these relatively low peak-hour volume impacts on any one street and the results of the intersection LOS analyses, it can be concluded that there is little potential that relocated parking would result in adverse effects to intersection or roadway LOS. It should also be noted that future individual public parking lot projects will require specific individual environmental analysis.

Impact TRA-1: Degradation of SR 28 Roadway Level of Service (LOS) Below Applicable Standards

Alternative 1

To analyze roadway LOS under the existing four-lane roadway configuration, the *Highway Capacity Manual* methodology for urban arterials was applied. Under this methodology, LOS is a measure of total travel speed through the corridor. For the design period in the peak direction, LOS B was determined for summer 2008 conditions in the peak direction, with a travel speed of 49.2 kph (30.5 mph). LOS B conditions were also found for winter 2008 conditions, with a travel speed of 47.6 kph (29.6 mph).

Applying the *Highway Capacity Manual* methodology for urban arterials, LOS E was determined for 2028 summer conditions in the peak direction, with a travel speed of 26.2 kph (16.3 mph). For winter conditions, LOS E was determined for 2028 conditions in the peak direction, with a travel speed of 22.2 kph (13.8 mph). It is anticipated that 2028 Average Daily Traffic (ADT) on SR 28 is estimated to equal 39,700 vehicles per day on the average day of the peak month (August).

The no build alternative (Alternative 1) would attain roadway LOS standards in 2008 and 2028. Consequently, Alternative 1 would not result in adverse effects on LOS. No mitigation is required.

Alternative 2

Alternative 2 consists of a three-lane cross-section along SR 28, with single-lane roundabouts at Bear Street and at Coon Street. The existing signal at SR 267 would remain. Brook Avenue would be converted to one-way eastbound from Bear Street to Coon Street. While on-street parallel parking would be provided along both sides of SR 28, parking would be prohibited during the summer season.

There is no standard traffic engineering analysis technique regarding the capacity associated with urban three-lane roadways operating under congested conditions with heavy parking, pedestrian, and bicycle activity. Therefore, capacity of SR 28 under this alternative was estimated based upon the observed capacity of the existing similar cross section of SR 28 in Tahoe City, adjusted for the differences between the two segments. The maximum capacity of SR 28 in Kings Beach under this alternative in the eastbound direction would be 1,241 vehicles per hour, while the westbound capacity would be 1,171 vehicles per hour. A similar analysis of winter conditions was found to have substantially lower roadway capacity: the eastbound capacity was found to equal 968 vehicles per hour, while westbound capacity was found to equal 953 vehicles per hour.

These capacities were then compared with the estimated directional traffic volumes by hour to identify those hours during which volumes would exceed capacity (thereby resulting in the formation of traffic queues). A summary of the results is shown in Table 3.6-7 and reflects the following for 2008 conditions.

- The TRPA LOS standard has two criteria: whether the peak-hour is LOS D or better, and whether no more than 4 hours per day exceed LOS E. In the eastbound direction, the peak-hour exceeds LOS E on 10 days, and the number of days per year with more than 4 hours exceeding LOS D is six (which occurred on the same days that LOS E

was exceeded in the peak hour). Therefore, the TRPA LOS standard is exceeded on 10 days per year. In the westbound direction, the peak-hour exceeds LOS E on five days, while the number of days per year with more than 4 hours exceeding LOS D is four, indicating that the TRPA LOS standard is exceeded 5 days per year (again, on the same days that LOS E is exceeded).

- It is also useful to evaluate the extent to which volumes would exceed the absolute roadway capacity, which is when slow-moving traffic queues would form. In the westbound direction, absolute roadway capacity would be exceeded during a total of 15 hours over the course of the summer. These hours would occur over 5 individual days, and up to 6 hours of traffic queues would occur on an individual day. In the eastbound direction, absolute roadway capacity would be exceeded during 28 hours of the summer. These hours will occur over the course of 10 individual days. Up to 7 hours of queuing would occur on an individual day.
- When traffic queues form on SR 28, drivers can be expected to divert onto parallel local roads. Under all of the hours in which diversion is forecast to occur, the diverted volume is expected to range up to no more than 200 vehicles per hour.
- A consideration in the evaluation of future traffic conditions along SR 28 in Kings Beach is if eastbound traffic queues generated by the pedestrian signal at North Stateline would impact Kings Beach. An evaluation of the operation of this pedestrian signal indicates that a queue would not be formed into Kings Beach at any time throughout the summer in 2008.
- Because hourly directional traffic volumes in the winter are not available over numerous days, the winter roadway LOS analysis was confined to a single peak day (specifically, the Friday after New Year's Day). Under Alternative 2, the TRPA standard would be exceeded in both directions in 2008 in winter, and absolute roadway capacity would be exceeded for 3 hours in the eastbound direction and 1 hour in the westbound direction.

A similar analysis for 2028 conditions yields the following conclusions.

- The TRPA LOS standard would be exceeded on 104 days per summer in the eastbound direction and 108 days in the westbound direction.
- In the westbound direction, roadway capacity would be exceeded (resulting in LOS F and the formation of slow-moving traffic queues along SR 28) during a total of 774 hours over the course of the summer. These hours would occur over virtually all days of the summer, and up to 11 hours of traffic queues would occur on an individual day. In the eastbound direction, roadway capacity would be exceeded (LOS F) during 670 hours of the summer. These hours will occur over the course of 104 individual days. Up to 11 hours of LOS F queuing would occur on an individual day.
- The diverted volume is expected to range up to between 400 and 500 vehicles per hour in the eastbound direction (for 124 hours per summer) and 400 to 500 vehicles per hour in the westbound direction (for 144 hours per summer).
- Eastbound traffic queues generated by the North Stateline pedestrian signal will form back into Kings Beach during 69 hours per summer. Subtracting this figure from the 670 total hours of eastbound queuing per summer, this roadway alternative in Kings Beach would generate 601 additional hours of queues over and above the 69 hours resulting from the North Stateline signal.
- Peak winter day conditions would exceed the TRPA LOS standard and would exceed the absolute roadway capacity during 8 hours in the eastbound direction and 12 hours in the westbound direction over the peak winter design day.

As a result of implementation of Alternative 2, there is the potential to exceed the TRPA LOS standard on SR 28 in Kings Beach.

- In 2008, the TRPA LOS standard would be exceeded for 10 days per summer in the eastbound direction and 5 days per summer in the westbound direction. TRPA LOS

standards would also be exceeded on a peak winter day, in both directions. TRPA standards do not identify how many days per year or per season are required to be considered an adverse effect. (As traffic studies typically do not evaluate multiple days per season, this issue is not typically raised.) Standard traffic engineering practice does not generally establish significance based upon a single peak hour or peak day but rather considers a “typical peak” condition (such as the 30th-highest volume in a year). For a seasonal daily standard, the tenth-highest day is assumed to be applicable for purposes of this study. Based upon this, LOS impacts in 2008 in the eastbound direction are considered to be an adverse effect. In comparison, the no build alternative (Alternative 1) would attain roadway LOS standards in 2008.

- In 2028, the TRPA LOS standard would be exceeded every one of the 108 days in the summer season in the westbound direction and 104 days per summer season in the eastbound direction, as well as in both directions on a peak winter day. In comparison, the no build alternative (Alternative 1) would attain roadway LOS standards in 2028.

It should be noted that an option to Alternative 2 has been proposed, which would widen the bike lanes on either side by two feet to improve traffic flow. As Alternative 2 (as well as Alternative 4, in winter) does not include on-street parking, the only traffic flow benefit would be a modest reduction in the friction factor associated with bicycle side friction. As this factor is less than 2% of total capacity, a reduction in this factor would not have a material effect on the results of the analysis. *Friction factors* are conditions that reduce through traffic capacity. They include pedestrian crossings, vehicle turning movements into/out of driveways and on-street parking spaces, and the tendency of at least some drivers to slow while passing bicyclists. In the case of SR 28 through Kings Beach, these friction factors are key in setting the capacity and thus the level of service of the roadway segments.

In accordance with the TRPA Regional Plan, and as discussed in the Kings Beach Urban Improvement Project Traffic Report (Appendix L), there are no feasible mitigation

measures that would reduce this impact to a level that would be less than significant under the TRPA Regional Plan, or to a level that conforms to TRPA's existing LOS standard for roadways.

Alternative 3

This alternative consists of four through travel lanes along SR 267 with traffic signals at SR 267, at Bear Street, and at Coon Street. New left-turn lanes along SR 28 would be provided at Bear Street, Coon Street, and Fox Street. Brook Avenue would be converted to one-way eastbound from Bear Street to Coon Street.

For both the summer and winter design periods in both directions, the TRPA LOS standard would be attained, in both 2008 and 2028. Consequently, Alternative 3 would not result in adverse effects on LOS.

Alternative 4

This alternative is identical to Alternative 2, except that no on-street parking spaces would be provided along SR 28, effectively prohibiting on-street parking year-round rather than solely in the summer.

The roadway LOS for Alternative 4 during the key summer season is identical to that identified for Alternative 2, as these alternatives only differ (from a traffic perspective) regarding the provision of on-street parking in the nonsummer seasons. An analysis for 2008 conditions yields the following conclusions:

- In the eastbound direction, the TRPA LOS standard is exceeded on 10 days per year. In the westbound direction, the TRPA LOS standard is exceeded 5 days per year.
- In the eastbound direction, absolute roadway capacity would be exceeded during 28 hours of the summer. These hours will occur over the course of 10 individual days, and up to 7 hours of queuing would occur on an individual day. Westbound, absolute roadway capacity would be exceeded resulting in the formation of slow-moving traffic queues along SR 28 during a total of 15 hours over the course of the

summer. These hours would occur over 5 individual days, and up to 6 hours of traffic queues would occur on an individual day.

- When traffic queues form on SR 28, drivers can be expected to divert onto parallel local roads. Under all of the hours in which diversion is forecast to occur, the diverted volume is expected to range to no more than 200 vehicles per hour.
- Eastbound traffic queues generated by the North Stateline pedestrian signal will not form back into Kings Beach at any time throughout the summer.
- 2008 winter roadway LOS conditions under Alternative 4 would attain the TRPA standard.

A similar analysis for 2028 conditions yields the following conclusions.

- The TRPA LOS standard would be exceeded on 104 days per summer in the eastbound direction and 108 days in the westbound direction.
- Westbound roadway capacity would be exceeded during a total of 774 hours over the course of the summer. These hours would occur over virtually all days of the summer, and up to 11 hours of traffic queues would occur on an individual day. In the eastbound direction, roadway capacity would be exceeded (LOS F) during 670 hours of the summer. These hours will occur over the course of 104 individual days. Up to 11 hours of LOS F queuing would occur on an individual day.
- The diverted volume is expected to range up to between 400 and 500 vehicles per hour in the eastbound direction (for 124 hours per summer), and 400 to 500 vehicles per hour in the westbound direction (for 144 hours per summer).
- Eastbound traffic queues generated by the North Stateline pedestrian signal will form back into Kings Beach during 69 hours per summer. Subtracting this figure from the 670 total hours of eastbound queuing per summer, this roadway alternative in Kings Beach would generate 601 additional hours of queues over and above the 69 hours resulting from the North Stateline signal.

- Peak winter day conditions would generate 3 hours of LOS F conditions in the eastbound direction and 10 hours in the westbound direction, exceeding the TRPA LOS standard.

As a result of implementation of Alternative 4, there is the potential to exceed the TRPA standard of no more than 4 hours per day of LOS E on SR 28 in Kings Beach.

- In 2008, the TRPA LOS standard would be exceeded on 10 days per summer in the eastbound direction and 5 days per summer in the westbound direction. Based upon this, LOS impacts in 2008 in the eastbound direction are considered to be an adverse effect. In comparison, the no build alternative (Alternative 1) would attain roadway LOS standards in 2008.
- In 2028, the TRPA LOS standard would be exceeded every one of the 108 days in the summer season in the westbound direction, and 104 days per summer season in the eastbound direction. In addition, the TRPA LOS standard would be exceeded in both directions on a peak winter day. In comparison, the no build alternative (Alternative 1) would attain roadway LOS standards in 2028.

As a result of implementation of Alternative 4, in 2008 the TRPA LOS standard would be exceeded on 10 days per summer in the eastbound direction, and 5 days per summer in the westbound direction. In 2028, the TRPA LOS standard would be exceeded each of the 108 days in the summer season in the westbound direction and 104 days per summer season in the eastbound direction. In addition, the TRPA LOS standard would be exceeded in both directions on a peak winter day.

In accordance with the TRPA Regional Plan, and as discussed in the Kings Beach Urban Improvement Project Traffic Report (Appendix L), there are no feasible mitigation measures that would reduce this impact to a level that would be less than significant under the TRPA Regional Plan, or to a level that conforms to TRPA's existing LOS standard for roadways.

Impact TRA-2: Increase in Average Daily Traffic on Residential Streets in Excess of Applicable Standards

Alternative 1

Alternative 1 would not increase ADT on residential streets because it represents the no build condition and adequate capacity would be provided along the state highways.

There would be no adverse effects under Alternative 1.

Alternative 2

By 2028, roadway segments with traffic expected to divert from the highway because of congestion in excess of 3,000 ADT would occur on Fox Street between Brook Avenue and Trout Avenue (an additional 3,200 ADT). Growth in ADT is forecast to reach as high as 2,000 on Coon Street between Trout Avenue and Rainbow Avenue, 3,200 on Chipmunk Street between SR 28 and Minnow Avenue, and 3,400 on Fox Street between Minnow Avenue and Salmon Avenue. Based on these results, it can be expected that many other residential street segments would also experience substantial increases in traffic levels due to diverted traffic in 2028.

Existing ADT volumes on these key impacted streets range from roughly 600 to 2,000, and, in the absence of changes on SR 28, are expected to increase by 2028 to 800–2,800. Adding these volumes to the diversion volumes, ADT under this alternative on Fox Street between Minnow Avenue and Salmon Street would be 5,400 and 4,000 on Chipmunk Street between SR 28 and Minnow Avenue.

Implementation of Mitigation Measure TRA-1 would help to reduce the severity of this effect; however, Placer County and TRPA still consider this an adverse effect. As discussed in the Kings Beach Improvement Project Traffic Report (Appendix L), the mitigation measures that would be needed to reduce this impact to a less-than-significant level under CEQA and TRPA guidelines are not considered feasible.

Alternative 3

Because SR 28 roadway volumes would not exceed capacity and intersections (with mitigation) would not generate adverse levels of delay, Alternative 3 is not anticipated to experience diverted traffic in excess of 3,000 ADT on residential streets for 2008 and 2028 conditions. Consequently, Alternative 3 would not result in adverse effects to ADT on local streets.

Alternative 4

Impacts during the peak summer season on residential street volumes for Alternative 4 are also identical to those of Alternative 2. Alternative 4 is not forecasted to experience diverted traffic in excess of 3,000 ADT on residential streets in 2008. Growth in ADT is forecasted to reach as high as 2,000 on Coon Street between Trout Avenue and Rainbow Avenue, 3,200 on Chipmunk Street between SR 28 and Minnow Avenue, and 3,400 on Fox Street between Minnow Avenue and Salmon Avenue. Based on these results, it can be expected that many other residential street segments would also experience substantial increases in traffic levels due to diverted traffic in 2028.

As a result of implementation of Alternative 4, there is the potential to exceed diverted traffic in excess of 3,000 ADT on a residential street with front-on lotting. It is anticipated that diverted traffic is not expected to exceed 3,000 ADT in 2008. However, by 2028 it is anticipated that portions of the following roadways would experience diverted traffic in excess of 3,000 ADT: Chipmunk Street (up to 4,000 ADT) and Fox Street (up to 5,400 ADT). As many of these residential streets are relatively narrow with little or no shoulder and substantial pedestrian activity, the increase in traffic would create an increased potential for accidents. Implementation of Mitigation Measure TRA-1 would help to reduce the severity of this effect. This is considered an adverse effect. In comparison, the no build alternative (Alternative 1) would not have an adverse effect on residential streets in 2028.

Implementation of Mitigation Measure TRA-1 would help to reduce the severity of this effect; however, Placer County and TRPA still consider this an adverse effect. As

discussed in the Kings Beach Improvement Project Traffic Report (Appendix L), the mitigation measures that would be needed to reduce this impact to a less-than-significant level under CEQA and TRPA guidelines are not considered feasible.

Impact TRA-3: Degradation of Intersection Levels of Service below Applicable Standards

Alternative 1

Under Alternative 1, the SR 28/SR 267 intersection in 2008 would operate at LOS C and LOS D for summer and winter conditions, respectively, while the SR 28/Coon Street intersection would operate at LOS A, for both summer and winter conditions. Also for both summer and winter, the worst approach (side street) LOS on Secline Street, Bear Street, and Fox Street would be LOS F. The Deer Street intersection would both provide LOS D/worst-approach conditions in the summer and LOS C in the winter, while the Chipmunk Street intersection would provide LOS E in the summer and LOS D in the winter.

By 2028, LOS F would be provided at the SR 267/SR 28 intersection and LOS D at the SR 28/Coon Street intersection in both summer and winter. LOS F conditions would occur at least 1 hour per day throughout the summer and on all busy ski days in the winter. To provide adequate LOS at the SR 267/SR 28 intersection, a separate westbound right-turn lane would be required (Mitigation Measure TRA-2). All side street approaches to SR 28 would provide LOS F conditions in both summer and winter. Consequently, the no build alternative fails to meet intersection LOS.

Alternative 2

LOS F conditions would be provided at the SR 28 / Coon Street roundabout on the eastbound approach in 2008 in both summer and winter, with long traffic queues (over 2,000 feet) during peak times. LOS F would be provided on roughly 40 hours of the summer.

While worst-approach LOS of E would be provided at the SR 28 / Bear Street roundabout in 2008, long queues would also form in the eastbound direction in both peak seasons. Adequate LOS of D or better would be provided at the SR 267 signal and at Chipmunk Street, while poor (LOS E or F) conditions would be provided on the side street approaches at the other unsignalized intersections.

LOS would not attain TRPA standards in 2028 at any study intersection. LOS F conditions at the SR 28/SR 267 intersection would occur at least 1 hour per day throughout the summer and on all busy ski days in the winter. A single-lane roundabout would not provide adequate (LOS E or better) traffic conditions at the Bear Street/SR 28 roundabout or Coon Street/SR 28 roundabout. LOS F conditions would occur for at least 1 hour on every day of the summer at both roundabouts, as well as on peak winter ski days. Instead, dual-lane roundabouts would be required. At the Bear Street and Coon Street intersections, dual-lane roundabouts are not considered to be feasible, due to the impacts on adjacent properties. Winter LOS analysis results are very similar, with the roundabouts providing LOS equal to or better than summer conditions and the unsignalized intersections providing worst-approach LOS of E or F.

The proposed single-lane configuration of the SR 28/Bear Street and SR 28/Coon Street roundabouts would provide unacceptable LOS F conditions on eastbound and westbound approaches in 2028, as well as on the SR 28/Coon Street roundabout in 2008. This would be an adverse effect. In comparison, the no build alternative (Alternative 1) would attain LOS standards at Coon Street in 2008 and 2028 but would not provide LOS of E or better at SR 28/Bear Street or provide acceptable LOS at the SR 28/SR 267 intersection in 2028. Implementation of Mitigation Measure TRA-2 would help to reduce the severity of this effect at the SR 28/SR 267 intersection.

Implementation of Mitigation Measure TRA-1 would help to reduce the severity of this effect; however, Placer County and TRPA still consider this an adverse effect. As discussed in the Kings Beach Improvement Project Traffic Report (Appendix L), the

mitigation measures that would be needed to reduce this impact to a less-than-significant level under CEQA and TRPA guidelines are not considered feasible.

Alternative 3

Adequate summer LOS of C or better would be provided under this alternative in 2008, except that the Secline and Fox Street intersections would provide poor (LOS E or F) conditions for side street approaches to the state highway in 2008. This condition is due to the estimated traffic volume, rather than the project alternative, which would not degrade LOS at the side streets from the Alternative 1 “No Project” condition. Winter peak-day LOS would be similar to summer LOS, except that the SR 267 intersection would provide LOS D.

Summer LOS would attain TRPA standards in 2028, except for the stop sign controlled intersections along SR 28, which will continue to provide poor (LOS F) conditions for side street approaches. This condition is due to the assumed future growth in traffic volumes, rather than the project alternative, which would not degrade LOS at the side streets from the Alternative 1 “No Project” condition. In addition, a separate westbound right-turn lane would be required to provide adequate LOS at the SR 267/SR 28 signal; this would provide a total intersection LOS of D. Without this additional lane, LOS F conditions would occur at least 1 hour per day throughout the summer and on all busy ski days in the winter. The results of the winter LOS analysis parallel those of the summer analysis.

The project alternative configuration of the SR 28/SR 267 intersection would provide unacceptable LOS F conditions in 2028 (but not in 2008). This would be an adverse effect. In comparison, the no-build alternative (Alternative 1) would also not attain LOS standards at this intersection in 2028 (but would attain standards in 2008).

Implementation of Mitigation Measure TRA-2 would help to reduce the severity of this effect. As discussed in the Kings Beach Urban Improvement Project Traffic Report (Appendix L), there are no additional feasible mitigation measures that would reduce this

impact to a level that would be less than significant, or to a level that conforms to TRPA's existing LOS standard for signalized intersections.

Alternative 4

The intersection LOS reported above for Alternative 2 also applies to Alternative 4 because there is no difference in the intersection configuration between these two alternatives.

LOS F conditions would be provided at the SR 28/Coon Street roundabout on the eastbound approach in 2008 in both summer and winter, with long traffic queues (over 2,000 feet) during peak times. LOS F would be provided on roughly 40 hours of the summer.

While a worst-approach LOS of E would occur at the SR 28/Bear Street roundabout in 2008, long queues would also form in the eastbound direction in both peak seasons. Adequate LOS of D or better would be provided at the SR 267 signal and at Chipmunk Street, while poor (LOS E or F) conditions would be provided on the side street approaches at the other unsignalized intersections.

Implementation of Mitigation Measure TRA-1 would help to reduce the severity of this effect; however, Placer County and TRPA still consider this an adverse effect. As discussed in the Kings Beach Improvement Project Traffic Report (Appendix L), the mitigation measures that would be needed to reduce this impact to a less-than-significant level under CEQA and TRPA guidelines are not considered feasible.

Impact TRA-4: Degradation of Bicycle and Pedestrian Conditions along SR 28

Alternative 1

Because Alternative 1 is the no build alternative, there would be no adverse effects on pedestrian or bicyclist mobility or safety. Existing poor pedestrian and bicycle conditions along SR 28 would remain. No mitigation measures are required.

Alternative 2

Alternative 2 would provide sidewalks and Class II bike lanes along both sides of SR 28 through the commercial core area. Under Alternative 2, a 2.9-meter (9.5-foot) sidewalk and landscape area would be added in each direction, which would be consistent with Placer County and TRPA standards for sidewalk width (3.0-meter [10-feet]) within the Kings Beach Commercial Core (Tahoe Regional Planning Agency 1994). The provision of a roundabout at SR 28/Bear Street would provide a substantially improved pedestrian crossing opportunity of the state highway, as the presence of a median “splitter island” would allow pedestrians to only cross one lane of traffic at a time and as the roundabout would slow traffic and increase the proportion of drivers yielding to pedestrians at the crosswalks. The reduction of SR 28 from four to three travel lanes would also benefit pedestrians crossing at other locations.

This would result in a beneficial impact. No mitigation measures are required.

Alternative 3

Alternative 3 would provide sidewalks and Class II bike lanes along both sides of SR 28 through the commercial core area. Under Alternative 3, a 1.7-meter (5.6-foot) sidewalk and landscape area would be added in each direction, which would be inconsistent with Placer County and TRPA standards for sidewalk width (3.0-meter [10-feet]) within the Kings Beach Commercial Core (Tahoe Regional Planning Agency 1994). Landscaping area would be minimal under Alternative 3. The provision of a signal at SR 28/Bear Street would provide an additional pedestrian crossing opportunity of the state highway. This would result in a beneficial impact. No mitigation measures are required.

Alternative 4

Alternative 4 would provide sidewalks and Class II bike lanes along both sides of SR 28 through the commercial core area. Under Alternative 4, a 5.3-meter (17.4-foot) sidewalk and landscape area would be added in each direction, which would be consistent with Placer County and TRPA standards for sidewalk width (3.0-meter [10-feet]) within the Kings Beach Commercial Core (Tahoe Regional Planning Agency 1994). The provision

of a roundabout at SR 28/Bear Street would provide a substantially improved pedestrian crossing opportunity of the state highway, as the presence of a median “splitter island” would allow pedestrians to only cross one lane of traffic at a time and as the roundabout would slow traffic and increase the proportion of drivers yielding to pedestrians at the crosswalks. The reduction of SR 28 from four to three travel lanes would also benefit pedestrians crossing at other locations. This would result in a beneficial impact. No mitigation measures are required.

Impact TRA-5: Degradation of Transit Operations

Alternative 1

Because Alternative 1 is the no build alternative, there would be no adverse effects on transit operations. No mitigation is required.

Alternative 2

The traffic congestion that would result from Alternative 2 would result in delays to TART operations. As a result, the ability to adhere to the existing schedule (half-hour runs between Tahoe City and Crystal Bay) and make timed service connections along the route would be degraded, and the on-time performance of the service would be reduced. This would result in an adverse effect. No mitigation is available to reduce the severity of this effect.

Implementation of Mitigation Measure TRA-1 would help to reduce the severity of this effect; however, Placer County and TRPA still consider this an adverse effect. As discussed in the Kings Beach Improvement Project Traffic Report (Appendix L), the mitigation measures that would be needed to reduce this impact to a less-than-significant level under CEQA and TRPA guidelines are not considered feasible.

Alternative 3

The traffic congestion associated with Alternative 3 would not be substantially different than for Alternative 1, the no build alternative. Consequently, Alternative 3 would not result in an adverse effect on transit. No mitigation is required.

Alternative 4

The traffic congestion that would result from Alternative 4 is similar to Alternative 2. Implementation of Mitigation Measure TRA-1 would help to reduce the severity of this effect; however, Placer County and TRPA still consider this an adverse effect. As discussed in the Kings Beach Improvement Project Traffic Report (Appendix L), the mitigation measures that would be needed to reduce this impact to a less-than-significant level under CEQA and TRPA guidelines are not considered feasible.

Impact TRA-6: Degradation of Emergency Access or Response Times

Alternative 1

Since Alternative 1 is the no build alternative, there would be no change in emergency access. This is not considered an adverse effect. No mitigation measures are required.

Alternative 2

Reduction of capacity under Alternative 2 would tend to be reduced due to increased congestion along SR-28. However, the provision of bicycle lanes along both sides of SR 28 would allow motorists to move out of travel lanes in advance of fire or medical vehicles. Observations of emergency vehicle travel along SR 28 in Tahoe City (which has a similar roadway configuration to this alternative) under congested conditions indicate that auto drivers have the space to maneuver out of the traffic lane to make way for emergency vehicles and that emergency vehicle travel speeds are not significantly reduced; thus, this alternative would not result in an adverse effect on emergency response times.

Alternative 3

Emergency access under Alternative 3 would not be substantially different than for Alternative 1, the no build alternative. Consequently, Alternative 3 would not result in an adverse effect on emergency response times. No mitigation is required.

Alternative 4

Emergency access under Alternative 4 is similar to Alternative 2.

Impact TRA-7: Short-Term Construction-Related Changes in Circulation and Local Traffic Patterns

Alternative 1

Because Alternative 1 is the no build alternative, there would be no construction and no adverse effects on traffic. No mitigation is required.

Alternatives 2, 3, and 4

Although detailed construction plans and phasing are not available, it is expected that Alternative 2 would require significant periods of lane closures and turn restrictions along SR 28. Though it should be possible to provide one lane of travel in each direction except for relatively short periods, traffic volumes in busy periods would exceed the capacity provided by one lane of travel in each direction. This would result in an adverse effect. Mitigation Measure TRA-3 would reduce the severity of this effect to a less-than-significant level.

The effects of construction on traffic operations under Alternatives 3 and 4 are similar to Alternative 2.

3.6.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Mitigation Measure TRA-1: Prepare a Neighborhood Traffic Management Plan

During the final stage of project design, Placer County will prepare a Neighborhood Traffic Management Plan (NTMP) in order to alleviate traffic in residential neighborhoods. The NTMP, which will include its own subsequent environmental review before it is implemented, will outline a process for handling neighborhood issues, such as excessive speed on local streets. The NTMP that Placer County has committed to implement has several components, including educational, enforcement, and enhancement (i.e., traffic calming devices) ones. The goal of the NTMP is to reduce the effects of increased cut through traffic.

The educational component of the NTMP will provide the community with a means of understanding traffic management tools and processes and also increase

public awareness of the impact that traffic will have on the neighborhood.

Educational efforts that Placer County will implement prior to construction as part of the NTMP include, but are not limited to, the following:

- Coordination of school and neighborhood NTMP meetings.
- Development/maintenance of an NTMP website.
- Coordination of a speed watch program.
- Coordination of the placement of temporary NTMP yard signs with volunteers.
- Design and distribution of NTMP brochures.
- Coordination of staff presentations to neighborhood groups.

The enforcement component of the NTMP entails focusing law enforcement efforts to acknowledge areas of concern. Enforcement efforts that Placer County will implement as part of the NTMP during construction include, but are not limited to the following:

- Enhanced police patrols (neighborhood police patrols, managed by the local police department, may be coordinated in several ways, including using several officers to blanket areas at limited times or by using one officer to be responsible for the day to day enforcement of an entire area).
- Real-time speed feedback signs.
- Photo-enforced speed limits.
- Signage (such as “Entering residential neighborhood...”).

The enhancement component of the NTMP consists of physical transportation system improvements. Numerous traffic calming devices may be selected by a neighborhood for placement on a street. Policy guidelines that Placer County will

implement during construction as part of the NTMP include, but are not limited to:

- Seasonal summer temporary speed bumps.
- Neckdowns/bulbouts (extensions of curbs/corner sidewalks at an intersection).
- Medians within the existing road profile.
- Choker/chicane (chokers are build-outs added to a road to narrow it, while chicanes are sequences of tight serpentine curves designed to slow roadway traffic).
- Traffic circle.
- Seasonal partial or full street closures.
- One-way streets.
- Turn movement restrictions.
- Diagonal intersection diverters.
- Median barrier through intersection.
- Forced turn island.
- Installation of roundabouts to encourage slower travel speeds.

Mitigation Measure TRA-2: Provide Westbound Right-Turn Lane at SR 28/267 Intersection

Placer County will provide a westbound right-turn lane at the SR 28/SR 267 intersection.

Mitigation Measure TRA-3: Implement a Construction Traffic Management Plan during Construction

During the final stage of project design, Placer County will prepare a Construction Traffic Management Plan (CTMP) in accordance with the Manual on Uniform Traffic Control Devices, California Supplement 2003, Part 6

Temporary Traffic Control (or current version) and Caltrans draft *Guidelines for Projects Located on the California State Highways in the Lake Tahoe Basin* (California Department of Transportation n.d.) that specifies those days and periods of each day over the construction season that specific lane closures can be accommodated without resulting in delays exceeding Caltrans construction delay standards. In addition, traffic diverting onto local streets should be monitored when delays to SR 28 traffic is expected, and temporary traffic controls should be implemented as necessary. When implemented, a CTMP reduces project-related traffic delay and fewer accidents through the effective combination of public and motorist information, demand management, incident management, system management, alternate route strategies, construction strategies, and other strategies.

The CTMP will be designed to reduce the amount of significant delay time due to lane closures and construction related activity. Significant delay time is 30 minutes above normal recurring traffic delay on the existing facility or the delay threshold set by the district traffic manager, whichever is less. Caltrans traffic management has indicated that SR corridors on the North Shore of Lake Tahoe might require a cumulative delay time of less than 30 minutes per CTMP guidelines. The Caltrans CTMP Unit shall make determinations of thresholds for delays as the development of the CTMP is being undertaken. Once these thresholds have been established, Placer County will ensure that they are incorporated into the CTMP. The CTMP will include, but is not limited to, the following measures, which will be implemented prior to construction:

- Maintain 2 lanes of traffic at all times through the commercial core of Kings Beach during construction of the new curb, gutter, and sidewalk. (Not required that existing lanes of traffic be provided throughout project).
- Require that one lane of traffic be open during working hours.
- Maintain a maximum vehicle delay of 20 minutes.

- Disperse public information such as brochures and mailers.
- Hold public meetings prior to construction.
- Install changeable message signs (portable) and ground mounted signs.
- Utilize the highway advisory radio and the Caltrans Highway Information Network to provide road/construction information to the traveling public.
- Construction Zone Enhanced Enforcement Program.
- Construction strategies such as lane closure charts, reduced speed zones, moveable barriers, K-Rails, staged construction, and Traffic Contingency Plan/Emergency Detour Plan.
- Enforce alternate route strategies and parking restrictions.
- BMPs, such as seasonal construction restrictions, to avoid impacting the Grifff Creek Watershed.
- Maintain pedestrian and bicycle traffic during construction.
- Allow active construction on one side of the roadway at a time.
- Mitigate the loss of parking before construction as much as possible.

Caltrans shall develop a Regional Transportation Management Plan (RTMP) due to the large number of transportation improvement proposals scheduled to occur within a similar timeframe in the greater action area. The RTMP would be expected to promote greater coordination between agencies and projects to minimize potentially significant impacts associated with multiple construction projects.

The following are objectives to be achieved from the RTMP, as described in the Caltrans draft *Guidelines for Projects Located on the California State Highways in the Lake Tahoe Basin* (California Department of Transportation n.d.).

- Provide accurate and timely information to the public.
- Minimize traffic delays while maximizing public and worker safety during construction.
- Minimize impacts on businesses, residences, schools, public services, and special events during construction.
- Provide design and instructional information regarding traffic management to the Project Engineer, Resident Engineer, and project specific Standard Special Provisions (SSPs) to be included in the project contract.
- Ensure that no more than 30 minutes of cumulative corridor delay will occur.

Timing and execution remain the greatest concern for most proposed construction projects in the immediate and greater action area. Project coordination between Caltrans' functional units is crucial and will take place. In particular, interagency synchronization within Caltrans will include the TMP Unit, Environmental Management, District 03 Public Information Office, Construction Engineering, and the project development teams. Close contact with local stakeholder agencies will be maintained in order to minimize cumulative socioeconomic-related impacts that would otherwise result from these related projects.

3.6.5 Compliance with Tahoe Regional Planning Agency Code

Table 3.6-8 presents an assessment of the consistency of each alternative with the adopted objectives and policies of the *Kings Beach Community Plan*, as adopted by TRPA and Placer County in 1996. Of those objectives and policies that pertain to the proposed action, Alternative 3 is consistent with the Community Plan's objective for traffic on SR 28. Alternative 3 does not meet acceptable levels of LOS at unsignalized intersections and provides only minimal benefits to pedestrians. The sidewalks in Alternative 3 are of a minimal width of 5 feet; which would be inconsistent with Placer County and TRPA standards for sidewalk width [3.0 meter (10-feet)] within the Kings Beach Commercial Core traffic on SR 28 would continue to be fast moving; and

pedestrians would be required to cross four lanes of traffic in the downtown area (Tahoe Regional Planning Agency 1994). The community plan emphasizes the use of the downtown as a pedestrian area with landscaping, lighting, trash receptacles, and bicycle racks. Alternative 3 only provides minimal progress towards this objective.

Alternative 2 and 4 provide for slower moving traffic on SR 28 and less than acceptable LOS on SR 28 and at controlled and uncontrolled intersections. The slowed traffic, combined with the wide sidewalks (2.9-meter [9.5-foot] sidewalk landscape area in each direction for Alternative 2 and 5.3-meter [17.4-foot] sidewalk landscape area in each direction for Alternative 4), the reduced width of SR 28 for pedestrian crossing, and the roundabouts achieve the Community Plan's vision for a downtown pedestrian village in Kings Beach.

Alternatives 2, 3, and 4 all provide bicycle lanes to facilitate the movement of bicycle traffic.

Table 3.6-8. Assessment of Alternatives Consistency with Transportation Goals of the KBCP¹

Kings Beach Community Plan Goals and Policies		Alternative 1		Alternatives 2 and 4		Alternative 3	
		Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion
Traffic Circulation and Parking Goal:	Reduce dependency on the automobile and improve the movement of people, goods, and services within Kings Beach and the Lake Tahoe Region consistent with the economic and environmental goals of the Community Plan.	No	No projects would be implemented to reduce auto use.	Partially Yes, Partially No	Sidewalk improvements would reduce automobile dependency, however recurring traffic congestion would slow the movement of people, goods, and services both within Kings Beach and the Lake Tahoe Region.	Yes	Sidewalk improvements would be provided while the movement of drivers, passengers, and goods and services would not be slowed.
Objective 1:	Provide a safe and efficient transportation system for the residents of the Kings Beach area and others who use the system.	No		Partially Yes, Partially No	<p>Recurring traffic congestion would result in less efficient transit operations.</p> <p>Traffic safety along SR 28 would be improved by traffic calming measures (i.e., roundabouts) and decreased crossing distances, but there would be an increase of diverted traffic through local streets. Implementation of the NTMP would help to reduce safety impacts associated with this diverted neighborhood traffic. Traffic safety along SR28 would be improved by reduced speeds associated with</p>	Partially Yes, Partially No	<p>No impacts to transit operations would occur.</p> <p>Traffic speeds and longer crossing distances would remain under this alternative. Traffic signals at SR 267, Bear Street, and Coon Street will facilitate pedestrian crossing and reduce safety issues.</p>

¹ This is a summary table that is provided only to assist the reader in understanding the different alternatives. The information within the table is generalized and should not be relied upon without reference to the full text.

Table 3.6-8. Continued

Kings Beach Community Plan Goals and Policies		Alternative 1		Alternatives 2 and 4		Alternative 3	
		Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion
Policy 1a:	The LOS on major roadways (i.e., arterial and collector routes as defined by Placer County) shall be LOS D and signalized intersections shall be LOS D (LOS E may be acceptable during peak periods, not to exceed 4 hours per day).	No		No	narrower roadway and traffic calming measures. Recurring traffic congestion on SR 28 would exceed roadway and intersection LOS in 2008 and 2028.	Yes	Roadway and signalized intersections meet LOS standards through 2028, with mitigation. Unsignalized intersections do not meet acceptable LOS.
Policy 1b:	Provide for the various functions currently accommodated in the public rights-of-way (e.g., through vehicle traffic, parking search, pedestrian activity, bicyclist activity, and parking).	No	Pedestrian and bicycle activity not enhanced.	Partially Yes, Partially No	Alternatives 2 and 4 provide less through vehicle capacity, reduces level of service, and will cause increases in cut-through traffic on local streets. Parking search would be partially reduced during no-on-street-parking periods (Alt 2 and hybrid), or greatly reduced (Alt 4, no on-street parking). Pedestrian and bicyclist activity would be enhanced through sidewalks and controlled intersections. Alternative 2 provides 2.9 meter (9.5 foot) sidewalks, Alternative 4 provides 5.3 meter (17.4 foot) sidewalks, which would be consistent with Placer	Possibly	Alternative 3 maintains existing through traffic capacity and level of service. Parking search will continue at the same level. Pedestrian and bicyclist activity would be enhanced through sidewalks and controlled intersections. Alternative 3 provides 1.7-meter (5.6-foot) sidewalks, which would be inconsistent with Placer County and TRPA standards for sidewalk width (3.0-meter [10-foot]) within the Kings Beach Commercial Core (Tahoe Regional Planning Agency 1994).

Table 3.6-8. Continued

Kings Beach Community Plan Goals and Policies		Alternative 1		Alternatives 2 and 4		Alternative 3	
		Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion
					County and TRPA standards for sidewalk width (3.0-meter [10-feet]) within the Kings Beach Commercial Core (Tahoe Regional Planning Agency 1994).		
Policy 1c:	Implement a parking management program that provides: adequate parking, limits traffic, considers connections between parking lots, encourages community parking lots, and complements transit.	No		Possibly	Should be incorporated into detailed planning.	Possibly	Should be incorporated into detailed planning.
Policy 1d:	When designating transportation improvements, consider traffic calming strategies such as alternative truck routes, speed reductions on SR 28, entry features, highlighted pedestrian cross walks, etc.	No		Partially Yes, Partially No	Crosswalks, reduced pedestrian crossing widths and traffic calming on SR 28 (i.e. roundabouts) would be provided. Traffic speed will be reduced on SR 28.	Partially Yes, Partially No	Additional traffic signals and crosswalks would be provided. Wide pedestrian crossings would remain and overall speed on SR 28 would not be reduced.
Objective 2:	Provide for sufficient capital improvements to meet the LOS target, meet the target for VMT reductions, and provide adequate parking facilities as development occurs in the community plan area.	No		No/Not Applicable	Does not meet LOS target. Project not intended to address VMT reduction or to address parking associated with development.	Partially Yes, Partially No	Meets LOS target for roadways and signalized intersections, with mitigation. Does not meet LOS for unsignalized intersections. Project not intended to address VMT reduction or to address parking associated with

Table 3.6-8. Continued

Kings Beach Community Plan Goals and Policies		Alternative 1		Alternatives 2 and 4		Alternative 3	
		Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion
Policy 2e:	Provide sufficient funding to finance the projects in the Capital Improvement Program (CIP).	NA		NA		NA	development.
Objective 3:	The Kings Beach Commercial Community Plan should promote land use changes and development patterns that will encourage the use of alternative transportation modes and reduce travel distances with the Community Plan.	NA		NA/Yes	The project does not change land use patterns. Provision of sidewalks encourages use of alternative transportation modes.	NA/Yes	The project does not change land use patterns. Provision of sidewalks encourages use of alternative transportation modes.
Policy 3a:	The community plan should provide for the in-fill of existing developed areas that would utilize existing transportation facilities while promoting alternatives to the private automobile.	NA		NA/Yes	The project does not change land use patterns. Provision of sidewalks encourages use of alternative transportation modes.	NA/Yes	The project does not change land use patterns. Provision of sidewalks encourages use of alternative transportation modes.
Objective 4:	The Kings Beach Commercial Community Plan should encourage the use of public and private transit.	No	Sidewalks that assist transit passengers to reach transit stops would not be implemented	Partially Yes, Partially No	Recurring traffic congestion on SR 28 would slow transit services, but may encourage transit use. The addition of sidewalks would assist passengers.	Yes	Transit services would not be negatively impacted by traffic congestion. Sidewalks would assist passengers.
Policy 4a:	Provide for the opportunity for water transit service.	NA		NA		NA	

Table 3.6-8. Continued

Kings Beach Community Plan Goals and Policies		Alternative 1		Alternatives 2 and 4		Alternative 3	
		Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion
Objective 5:	The community plan shall develop sidewalks along both sides of SR 28 and local commercial streets. This includes landscaping, lighting, trash receptacles, and bicycle racks.	No		Yes	Alternative 2 would provide for a 2.9-meter (9.5-foot) sidewalk and landscape area in each direction. Alternative 4 would provide for a 5.3-meter (17.4-foot) sidewalk and landscape area in each direction.	No	Alternative 3 would provide for a 1.7-meter (5.6-foot) sidewalk in each direction, which would be inconsistent with Placer County and TRPA standards for sidewalk width [3.0 meter (10-feet)] within the Kings Beach Commercial Core (Tahoe Regional Planning Agency 1994). Because the majority of sidewalks are 1.5 meters (5-feet) wide, which is just wide enough for pedestrian passing, landscaping area would be minimal under Alternative 3.
Policy 5a:	Implement a program through review of projects or preferably through improvement districts that provides for the street improvements.	No		Yes		Yes	
Objective 6:	The Kings Beach Commercial Community Plan should develop a bicycle recreational trails network with connections to recreation and commercial land uses.	No	Pedestrian and bicycle activity not enhanced.	Yes		Yes	

Table 3.6-8. Continued

Kings Beach Community Plan Goals and Policies		Alternative 1		Alternatives 2 and 4		Alternative 3	
		Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion
Policy 6a:	Provide for a system of bicycle recreation trails in the community plan improvement program.	No	Pedestrian and bicycle activity not enhanced.	Yes		Yes	
Objective 8:	Transportation System Management (TSM) measures should be provided to improve the efficiency of the existing transportation system within the Community Plan.	NA		NA		NA	
Policy 8a:	Driveways and access-egress points to commercial businesses along SR 28 should be coordinated to reduce the number of turn movements and improve the flow along SR 28.	No	Not implemented.	Yes	The number of access points along SR 28 would be reduced.	Yes	The number of access points along SR 28 would be reduced.
Policy 8b:	Parking guidelines within Kings Beach Commercial Community Plan should encourage the consolidation of off-street public parking within the commercial streets.	No	Not implemented.	Yes	So long as loss of SR 28 parking is addressed by provision of equal number of spaces in new public parking areas.	Yes	So long as loss of SR 28 parking is addressed by provision of equal number of spaces in new public parking areas.
Objective 9:	The Community Plans for Carnelian Bay, Tahoe Vista, Kings Beach, and North Stateline all propose the completion of a follow-up study, after plan adoption, that will examine	No	Pedestrian and bicycle activity not enhanced.	Yes	The project addresses these issues, at least for the Kings Beach area.	Yes	The project addresses these issues, at least for the Kings Beach area.

Table 3.6-8. Continued

Kings Beach Community Plan Goals and Policies	Alternative 1		Alternatives 2 and 4		Alternative 3	
	Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion
a number of transportation issues affecting SR 28. This study, intended to involve Caltrans, Placer County, TRPA, and interested citizens, will examine such issues as the appropriate number of travel lanes on the highway, the use of center medians, techniques for "traffic calming," and regulation of travel speed.						

Sources:

- LSC Transportation Consultants, Inc.
- KB Com Plan Consistency.wb3.
- North Tahoe Community Plan, TRPA, Adopted April 1, 1996.

3.7 Parking

The following discussion summarizes the existing parking and regulatory environment. A complete parking study, providing additional methodology and results of the analysis, is provided in the *Kings Beach Commercial Core Parking Study* (KBCCPS), prepared by LSC Transportation Consultants, Inc. (2003). The KBCCPS is included as Appendix M of this document.

Parking impacts are evaluated for the full construction of the build alternatives. Because there is no difference in this impact by year, parking impacts are not considered for specific design years. Additional on- and off-street potential parking locations are illustrated in Figure 3.7-1, while Table 3.7-1 summarizes components associated with these locations. Figure 3.7-1 and Table 3.7-1 indicate parking locations that will be built before completion of the proposed action, as well as parking locations that were initially considered but ultimately withdrawn due to existing land use conflicts or other environmental constraints.

3.7.1 Affected Environment

Parking conditions in the action area can currently be summarized as follows.

- Excluding informal parking in vacant lots and disabled-only spaces (which are only on private property or in parking lots, not on the state highway), there are approximately 1,968 parking spaces in the action area. Because much of the existing parking is not formally striped, some of this parking capacity has been estimated based upon typical parking patterns during peak periods. Of this total, 1,530 are private spaces in developed lots, 202 are along the SR 28 ROW, and 236 are along side streets. Of the 1,530 private spaces, 666 are associated with lodging or residential uses, and the remaining 864 are associated with commercial or public uses. In total, 1,302 spaces are available for commercial/public parking (excluding lodging and residential) on the streets or in private lots.

- A comprehensive survey of parking utilization throughout the action area was conducted on Friday, August 24, 1999. This data was then factored up (based on traffic counts conducted during the peak day and on the day of the counts) to reflect parking conditions on a peak Saturday in August. The total number of parked vehicles in the action area reached a maximum of 1,039 between noon and 2:00 p.m., reflecting an overall peak utilization of 53%. Parked vehicles exceeded the parking supply in the subarea along the south side of SR 28 between Deer and Coon Streets, where a total of 246 vehicles were observed to be parking in an area with 203 identified spaces (with the remaining 43 vehicles parked in illegal or substandard spaces). Focusing only on the spaces along the SR 28 ROW (excluding spaces on private property accessed directly off of the highway), at the peak time 91 of the total 202 spaces were utilized. These figures do not reflect parking conditions during special events.
- There is no similar available count data for winter parking use in Kings Beach. The summer beach use, however, is the single greatest generator of parking demand in the action area, resulting in an estimate of 200 parked vehicles during peak periods. Although winter parking supply is reduced somewhat due to snow storage, it can be concluded that the critical parking conditions occur in summer.
- In addition to the counts of actual parking demand, an analysis was conducted to determine the number of spaces required by the Placer County and TRPA *Standards and Guidelines for Signage, Parking, and Design* (Placer County and Tahoe Regional Planning Agency 1994). This evaluation involved multiplying the parking demand rates by the number of various land uses in the action area. This analysis indicates that the actual observed parking demand exceeds the demand calculated by the applicable parking demand rates by approximately 134 parked vehicles. The actual observed parking demand is, therefore, used in this analysis to define the standards of significance.

Table 3.7-1. Summary of Potential Parking Components

Element	APN	Existing land use & Ownership	Number of parking spaces	TRPA Land Classification	Area (acres) ¹	Hard coverage (acres) ²	LSOGs Severely Damaged	LSOGs Removed	Trees Severely Damaged ^b	Trees Removed	LSOG Quantity	Tree Quantity
Potential parking locations												
1	NA	Vacant/Private	14	5	0.09	0.04	3	0	2	2	3	7
3	090-122-030 090-122-031	Vacant/Public (Stoker Prop.)	41	1b/5	0.50	0.25	9	0	1	3	10	16
4	090-126-017	Vacant/Private	5	1b	0.14	0.07	3	0	2	2	3	7
6	090-133-008 090-133-009	Residential Motel/Private	37	5	0.42	0.21	5	0	1	3	8	7
7	090-221-013 090-221-014 090-221-020	Abandon Fuel Station/Private	40	1b/5	0.47	0.23	1	0	0	0	1	2
8	090-192-030	Vacant/Private	28	5	0.39	0.20	5	0	4	6	7	20
9	090-133-006 090-133-007	Vacant/Private	27	5	0.31	0.15	5	0	2	7	8	7
10 ³	NA	County ROW	38	1b/5	0.20	0.10	0	0	0	0	0	0
14	090-134-042	Vacant/Private	24	5	0.27	0.13	3	0	1	8	3	12
15	090-134-007	Parking/Private	11	5	0.25	0.13	1	0	4	3	2	13
17	090-134-008	Business/Private	24	5	0.25	0.13	2	0	1	2	2	11
18	090-134-006	Business/Private	11	5	0.11	0.05	0	0	0	0	0	3
19	NA	County ROW	9	5	0.05	0.03	0	0	0	3	0	3
20 ³	NA	County ROW	5	5	0.03	0.01	0	0	0	0	0	0
21	NA	County ROW	11	5	0.06	0.03	1	0	4	1	2	6
22	NA	County ROW	14	5	0.07	0.04	3	0	1	0	3	4
23	090-122-001	Vacant/Private	12	1b	0.12	0.06	2	0	0	1	2	3

Table 3.7-1. Continued

Element	APN	Existing land use & Ownership	Number of parking spaces	TRPA Land Classification	Area (acres) ¹	Hard coverage (acres) ²	LSOGs Severely Damaged	LSOGs Removed	Trees Severely Damaged ^b	Trees Removed	LSOG Quantity	Tree Quantity
24	NA	County ROW	6	5	0.03	0.02	0	0	1	0	0	1
25	090-122-023 090-122-036 090-122-035	Vacant/private	24	5	0.36	0.18	10	0	2	7	10	23
26	NA	County ROW	14	1b/5	0.07	0.04	1	0	2	1	1	4
27	NA	County ROW	21	1b	0.12	0.06	0	0	3	5	0	8
28 ³	NA	County ROW	4	1b	0.02	0.01	0	0	0	0	0	0
29	NA	County ROW	9	5	0.04	0.02	1	0	4	1	1	6
30	NA	County ROW	13	5	0.08	0.04	3	0	1	0	3	4
31	NA	County ROW	10	1b/5	0.04	0.02	1	0	0	0	1	1
32	090-192-025	Vacant/private	30	5	0.05	0.03	0	0	2	4	0	30
33	NA	County ROW	16	1b/5	0.08	0.04	1	0	2	0	1	6
34	NA	County ROW	6	5	0.03	0.02	1	0	1	4	1	6
Totals:	NA	NA	504	NA	4.65	2.33	61	0	41	63	72	210
Parking locations considered and withdrawn⁴												
A	090-071-017 090-071-033	Vacant/private	42	5	0.55	0.28	NA	NA	NA	NA	NA	NA
B	090-074-023 090-074-024	Residential/private	80	5	0.94	0.47	NA	NA	NA	NA	NA	NA
C	090-071-009	Residential/private	24	5	0.29	0.14	NA	NA	NA	NA	NA	NA
Totals:	NA	NA	146	NA	1.77	0.89	NA	NA	NA	NA	NA	NA

Table 3.7-1. Continued

Element	APN	Existing land use & Ownership	Number of parking spaces	TRPA Land Classification	Area (acres) ¹	Hard coverage (acres) ²	LSOGs Severely Damaged	LSOGs Removed	Trees Severely Damaged ^b	Trees Removed	LSOG Quantity	Tree Quantity
\Parking locations built before completion of the CCIP												
D	090-122-019	Existing parking lot/vacant/Placer County	20	5	0.29	0.14	NA	NA	NA	NA	NA	NA
E	090-126-020	Vacant/Placer County	22	5	0.21	0.11	NA	NA	NA	NA	NA	NA
F	090-192-025	Vacant/Placer County	21	5	0.21	0.10	NA	NA	NA	NA	NA	NA
Totals:	NA	NA	63	NA	0.71	0.35	NA	NA	NA	NA	NA	NA

Notes:

¹ Projected area: actual area will be determined once project final design is completed.² Assumes 50% coverage of total lot acreage; total area of hard coverage will be determined once project final design is completed.³ No trees would be removed from these potential parking locations.⁴ Parking lots have been withdrawn due to existing land use conflicts or other environmental constraints.

3.7.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

3.7.2.1 Caltrans

Caltrans does not have any thresholds or standings pertaining to parking.

3.7.2.2 Placer County

The Placer County and TRPA *Standards and Guidelines for Signage, Parking, and Design* provides standards for the number of parking spaces required for a wide variety of land use types (Placer County and Tahoe Regional Planning Agency 1994). These standards were used as the basis for the KBCCPS, on which this analysis is based.

3.7.2.3 TRPA

The TRPA does not have specific established standards that apply to the impact of roadway/streetscape projects on parking conditions. Regarding land use development, *Section 24.1.B* of the TRPA Code of Ordinance indicates that the Placer County and TRPA *Standards and Guidelines for Signage, Parking, and Design* will apply to the Kings Beach Commercial Community Plan area (Placer County and Tahoe Regional Planning Agency 1994). These standards and guidelines also do not address the issue of replacement parking associated with roadway/streetscape projects.

3.7.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

3.7.3.1 Study Methods and Procedures

A comprehensive study of parking supply and demand in the action area was conducted in 2003 by LSC Transportation Consultants Inc. as documented in the KBCCPS (LSC Transportation Consultants Inc. 2003). This study focused on an area within one block of SR 28 between SR 267 and Chipmunk Street. The parking supply data presented in this document was updated by LSC to reflect changes in land uses and associated parking supply between 2000 and the preparation of this environmental document in 2005, such

as the removal of the Beach Barn and the conversion of the Los Compadres restaurant site to a furniture store.

As discussed below, the action area currently has adequate parking availability as a whole, but a parking shortfall exists during peak summer periods for the key area between Deer Street and Coon Street south of SR 28. Focusing on the key on-street spaces that would be impacted by the proposed action, a maximum of 45% of all on-street spaces between Deer Street and Fox Street were utilized during peak conditions, based on observations. This indicates that parking availability is limited along the beachfront area (particularly in the parking lots). However, some unused capacity currently exists in the total inventory of on-street parking available within the action area, which helps to offset some loss of parking. As a result, it is not necessary to strictly ensure that the number of parking spaces is maintained within the proposed action area. Instead, a portion of this existing on-street capacity can be utilized, so long as resulting conditions do not exceed a reasonable maximum utilization rate for on-street spaces. The parking planning profession typically considers an effective maximum utilization of parking spaces to be 90 to 95% of all spaces. This is to provide some availability of parking during peak periods to minimize excess circulation as drivers search for the last remaining parking spaces. Due to the dispersed pattern of public parking in the area, a conservative assumption is that a maximum of 90% utilization is appropriate for public spaces in Kings Beach.

For purposes of this analysis, an adverse parking effect is defined as a net loss of parking that causes public parking utilization to exceed 90% along any portion of the action corridor.

Impact PK-1: Parking Utilization in Excess of 90%

Alternative 1

Although it can be expected that there will be development of new land uses in Kings Beach in the future, it can be assumed that parking demand for new land uses will be consistent with the parking requirements of the *Kings Beach Commercial Community*

Plan and that adequate parking will be provided either on-site or in off-site, off-street lots developed for this purpose. As a result, future development will not affect the parking demand for the on-street spaces impacted by the proposed urban improvement project. Because the proposed action does not generate increased parking demand, the impact of the build alternatives is limited to the net impact on the number of parking spaces. Alternative 1 would result in no change to either on-street spaces or spaces on private parcels accessed directly from the highway.

Alternative 2

Under Alternative 2, on-street parallel parking would be provided along both sides of SR 28 between Secline Street and Chipmunk Street. However, parking would be prohibited during the peak summer season, which would be accomplished by signing, temporary barricades, and enforcement.

Post-Project Parking Conditions—2008 and 2028

Although Alternative 2 (as well as the other build alternatives) would not change parking demand in the action area, it would impact parking supply in two ways.

- First, it would result in a reduction in on-street parking spaces along SR 28 between Fox and Chipmunk Street during the peak summer season. As shown in Table 3.7-2, the existing 202 on-street parking spaces would be eliminated.
- Second, the alternative would reduce access to existing perpendicular and angled parking spaces on private property currently accessed directly off of the state highway. While individual properties would generally be provided with curb cuts to access full driveways, the many existing spaces accessed directly off of the highway would be effectively eliminated. As shown in the center portion of Table 3.7-2, a net loss of 78 private spaces would result (from any of the build alternatives). In cases where some spaces could be replaced by providing parking in the same area outside of the ROW (behind the sidewalk) with access off of the private driveway, it was assumed that these spaces would be provided. This total includes two spaces each

along the east side of Secline Street and the west side of Fox Street just north of SR 28 that would be eliminated by the curb returns.

As indicated in Table 3.7-2, the net result associated with impacts on public and private parking spaces associated with Alternative 2 would be a net reduction of 280 parking spaces in the action area.

As a result, it is necessary to evaluate the total number of available on-street parking spaces that could be utilized without exceeding the 90% peak utilization factor.

Table 3.7-3 presents an evaluation of the existing on-street parking demand and supply. Parking supply is currently 202 spaces. To be conservative, the peak accumulation of the three parking count time periods was then identified for each street segment. As shown, summing the peak demand for each segment indicates a peak on-street parking demand of 126 vehicles. Factoring to reflect 90% maximum utilization, 142 spaces are required. Taking the difference, the existing supply of on-street spaces could be reduced by 60 spaces (for the action area as a whole) while still maintaining the 90% utilization rate. Table 3.7-3 also presents this evaluation of available spaces on a block-by-block basis. Although the total action area has excess spaces, the key blocks between Deer Street and Bear Street have a net shortfall of nine on-street spaces during peak periods.

Alternative 2 would result in a net loss of 280 spaces (Table 3.7-2), which would exceed the number of spaces that could be eliminated while still attaining the 90% utilization rate (60, as indicated in Table 3.7-3).

To compensate for the loss of parking, Placer County will provide new parking spaces to meet the 90% utilization rate as part of the project, which would ensure adequate parking availability. In addition, Placer County will ensure the new parking spaces are located within a reasonable walking distance (i.e., one block) of the specific subareas of impact.

New parking spaces will be provided so that the parking requirements of each block—either within that block or within an adjacent block—are met to ensure that adequate parking conditions are maintained for all subareas (by block) within the action area. This

Table 3.7-2. Impact of Alternatives on Number of Parking Spaces During Peak (Summer) Season

Alternative 2 Parking Impacts							
Road Segment	Public					Private	Total Parking Shortfall
	Existing Spaces	Planned Spaces	Spaces Eliminated	Demand	Parking Shortfall	Spaces Eliminated	
SR267 to Secline	12	0	12	6	6	0	6
Secline to Deer	29	0	29	15	15	17	32
Deer to Bear	30	0	30	39	39	22	61
Bear to Coon	33	0	33	38	38	6	44
Coon to Fox	32	0	32	24	24	24	48
Fox to Chipmunk	66	0	66	20	20	9	29
Total:	202	0	202	142	142	78	220

Alternative 3 Parking Impacts							
Road Segment	Public					Private	Total Parking Shortfall
	Existing Spaces	Planned Spaces	Spaces Eliminated	Demand	Parking Shortfall	Spaces Eliminated	
SR267 to Secline	12	15	-3	6	(9)	0	(9)
Secline to Deer	29	18	11	15	(3)	17	14
Deer to Bear	30	22	8	39	17	22	39
Bear to Coon	33	22	11	38	16	6	22
Coon to Fox	32	8	24	24	16	24	40
Fox to Chipmunk	66	23	43	20	(3)	9	6
Total:	202	108	94	142	34	78	112

Alternative 4 Parking Impacts							
Road Segment	Public					Private	Total Parking Shortfall
	Existing Spaces	Planned Spaces	Spaces Eliminated	Demand	Parking Shortfall	Spaces Eliminated	
SR267 to Secline	12	0	12	6	6	0	6
Secline to Deer	29	0	29	15	15	17	32
Deer to Bear	30	0	30	39	39	22	61
Bear to Coon	33	0	33	38	38	6	44
Coon to Fox	32	0	32	24	24	24	48
Fox to Chipmunk	66	0	66	20	20	9	29
Total:	202	0	202	142	142	78	220

Source: LSC Transportation Consultants, Inc. 2000.

block-level analysis is warranted because the action area is too large to be considered as a single parking area because drivers will not typically walk the distances from outlying areas to the areas of parking shortages. For instance, new parking spaces within the area provided between Deer and Bear Streets above the 39 required for this specific block could be used to offset the loss of parking along the adjacent blocks between Secline and Deer Streets to the west and Bear and Coon Streets to the east. Providing new parking supply in accordance with this pattern will focus parking on those blocks that have the greatest need. Unless new parking supply can be developed to exactly match this pattern, more new spaces would be provided in excess of the 220 total new spaces required to provide adequate new parking for each block.

The number of adequate parking spaces required by block is estimated by subtracting the available parking capacity (60 spaces, as indicated in Table 3.7-3) from the net impact of the alternative (280 spaces, indicated in Table 3.7-2). As indicated in Table 3.7-2, a minimum of 220 new parking spaces is required. Table 3.7-2 also indicates the number of spaces required to compensate for the loss of parking along each block (total of both sides) of SR 28. The largest number of new spaces, 61 spaces, will be required to compensate for the loss of parking between Deer and Bear Streets.

Figure 3.7-1 shows potential parking that will be added to compensate for the project alternatives. Two parking lots totaling 40 spaces have already undergone environmental review and will be built prior to the start of construction of the proposed action. These two lots are shown in Figure 3.7-1 with red shading. They include the Minnow Avenue parking lot that would include 20 spaces (APN 090-192-025), and the Brook Avenue parking lot that would add 20 spaces (APN 090-122-019). Figure 3.7-1 also shows locations (both on- and off-street) from which additional future parking spaces would be selected.

The analysis of construction phasing and staging necessary to evaluate temporary construction parking impacts has also not been conducted. It can be expected that short-term loss of public parking and loss of access to private parking will occur as part of

project construction. To date, Placer County has constructed two new public parking lots that can be used to offset spaces lost during construction and intends to construct several more prior to the SR 28 project. In addition, Placer County DPW will develop construction plans to minimize the number and duration of temporary loss of parking during construction, will monitor parking conditions during construction, and will work with affected property owners to minimize effects. Placer County will also provide new lots and off-site parking spaces to compensate for the loss of on-street parking.

As part of the Alternative 2, Placer County has committed to compensating for parking spaces lost as a result of the project. Consequently, Alternative 2 would not result in substantial parking effects.

Table 3.7-3. Evaluation of SR 28 Available On-Street Parking

Block (Total of Both Sides)	Existing Public Parking Supply (# of Spaces)	Observed Parking Demand				Required Parking (90% utilization)	Parking Surplus/ (Shortage)
		10 am to 12 pm	12 pm to 2 pm	2 pm to 4 pm	Maximum		
SR 267 to Secline	12	4	4	5	5	6	6
Secline to Deer	29	9	9	13	13	15	14
Deer to Bear	30	24	17	35	35	39	(9)
Bear to Coon	33	34	22	19	34	38	(5)
Coon to Fox	32	21	12	17	21	24	8
Fox to Chipmunk	66	15	18	8	18	20	46
Total:	202	107	82	97	126	142	60

Source: LSC Transportation Consultants, Inc. 2003. Counts conducted August 20, 1999, factored up to reflect peak August Saturday conditions.

Alternative 3

Under Alternative 3, on-street parallel parking would be provided along both sides of SR 28 year-round.

Post-Project Parking Conditions—2008 and 2028

Alternative 3 would result in a net loss of 94 spaces, while maintaining 108 parking spaces along SR 28. As with Alternative 2, any reduction over 60 spaces would result in parking utilization rates that exceed 90%. Moreover, an additional net loss of 78 existing spaces on private lots accessed directly off of the highway would result in a total reduction of 172 parking spaces (Table 3.7-2).

As indicated in Table 3.7-2, Alternative 3 would result in a net reduction of 172 parking spaces (public and private). Subtracting the 60 spaces currently available within the 90% utilization standard from the reduced parking supply of 172 spaces indicates that a minimum of 112 parking spaces are required to compensate for parking spaces lost from implementing Alternative 3. The greatest number of new spaces (40 spaces) will be required to compensate for the loss of existing spaces between Coon and Fox Streets.

To compensate for the loss of parking, Placer County will provide new parking spaces to meet the 90% utilization rate as part of the project, which would ensure adequate parking availability. In addition, Placer County will ensure the new parking spaces are located within a reasonable walking distance (i.e., one block) of the specific subareas of impact.

New parking spaces will be provided in a manner that addresses the parking requirements of each block—either within that block or within an adjacent block—in order to ensure that adequate parking conditions are maintained for all sub-areas (by block) within the action area. This block-level analysis is warranted because the action area is too large to be considered as a single parking area because drivers will not typically walk the distances from outlying areas to the areas of parking shortages. No compensation is required for the block between SR 267 and Secline Street; the nine spaces available in this block would be available to partially address the parking spaces needed for the adjacent Secline-Deer Street block.

Figure 3.7-1 shows potential parking that will be added to compensate for the project alternatives. Two parking lots totaling 40 spaces have already undergone environmental

review and will be built prior to the start of construction of the proposed action. These two lots are shown in Figure 3.7-1 with red shading. They include the Minnow Avenue parking lot that would include 20 spaces (APN 090-192-025), and the Brook Avenue parking lot that would add 20 spaces (APN 090-122-019). Figure 3.7-1 also shows locations (both on- and off-street) from which future additional parking spaces would be selected.

The analysis of construction phasing and staging necessary to evaluate temporary construction parking impacts has also not been conducted. It can be expected that short-term loss of public parking and loss of access to private parking will occur as part of project construction. To date, Placer County has constructed one new public parking lot that can be used to offset spaces lost during construction and intends to construct several more prior to the SR 28 project. In addition, Placer County DPW will develop construction plans to minimize the number and duration of temporary loss of parking during construction, will monitor parking conditions during construction, and will work with affected property owners to minimize effects. Placer County will also provide new lots and off-site parking spaces to compensate the loss of available on-street parking spaces.

As part of Alternative 3, Placer County has committed to compensating for parking spaces lost as a result of the project by adding spaces. Consequently, Alternative 3 would not result in substantial parking effects.

Alternative 4

Under Alternative 4, on-street parallel parking would not be provided along the entire length of the proposed action, effectively prohibiting on-street parking year-round rather than solely in the summer, as with Alternative 2. Off-street parking would be provided with side street parking and newly constructed parking lots to compensate for this loss.

Post-Project Parking Conditions—2008 and 2028

Alternative 4 would eliminate all on-street parking spaces along SR 28 in the action area, resulting in a loss of 202 spaces. As with Alternative 2, any reduction over 60 spaces would result in parking utilization rates that exceed 90%. Moreover, an additional net loss of 78 existing spaces on private lots accessed directly off of the highway would result in a net reduction of 280 spaces (Table 3.7-2).

As indicated in Table 3.7-2, Alternative 4 results in a net reduction in parking supply of 280 spaces. The number of adequate parking spaces required by block can be estimated by subtracting the available parking capacity of 60 spaces currently available within the 90% utilization standard from the net impact of the alternative (280 spaces indicated in Table 3.7-2). As indicated in Table 3.7-2, a minimum of 220 spaces is required to compensate for this alternative's impact on parking conditions. The largest number of new spaces, 61 spaces, will be required to compensate for the loss of existing spaces between Deer and Bear Streets.

To compensate for the loss of parking, Placer County, as part of the project, will provide new parking spaces to meet the 90% utilization rate, which would ensure adequate parking availability. In addition, Placer County will ensure the new parking spaces are located within a reasonable walking distance (i.e., one block) of the specific subareas of impact.

New parking spaces will be provided in a manner that addresses the parking requirements of each block—either within that block or within an adjacent block—in order to ensure that adequate parking conditions are maintained for all sub-areas (by block) within the action area. This block-level analysis is warranted because the action area is too large to be considered as a single parking area because drivers will not typically walk the distances from outlying areas to the areas of parking shortages.

Figure 3.7-1 shows potential parking that will be added to compensate for the project alternatives. Two parking lots totaling 40 spaces have already undergone environmental

review and will be built prior to the start of construction of the proposed action. These two lots are shown in Figure 3.7-1 with red shading. They include the Minnow Avenue parking lot that would include 20 spaces (APN 090-192-025), and the Brook Avenue parking lot that would add 20 spaces (APN 090-122-019). Figure 3.7-1 also shows locations (both on- and off-street) that the project applicant is currently evaluating for future potential parking spaces.

The analysis of construction phasing and staging necessary to evaluate temporary construction parking impacts has also not been conducted. It can be expected that short-term loss of public parking and loss of access to private parking will occur as part of project construction. To date, Placer County has constructed two new public parking lots that can be used to offset spaces lost during construction and intends to construct several more prior to the SR 28 project. In addition, Placer County DPW has indicated that it will develop construction plans to minimize the number and duration of temporary loss of parking during construction, will monitor parking conditions during construction, and will work with affected property owners to minimize effects. Placer County will provide new lots and off-site parking spaces to compensate for the loss of available on-street parking.

As part of Alternative 4, Placer County has committed to compensating for parking spaces lost by adding spaces. Consequently, Alternative 4 would not result in substantial parking effects.

3.7.4 Mitigation, Avoidance, Minimization, and Compensation Measures

No mitigation, avoidance, minimization, or compensation measures are required. Placer County, as part of the project, has committed to compensating for the loss of parking spaces that would result from any of the three build alternatives. Consequently, no additional mitigation or compensation would be required.

3.7.5 Compliance with Tahoe Regional Planning Agency Code

Table 3.7-4 presents an assessment of the consistency of each alternative with the adopted parking-related objectives and policies of the Kings Beach Community Plan, as adopted by TRPA and Placer County in 1996. Of those objectives and policies that pertain to the proposed action, all of the build alternatives (Alternatives 2 through 4) would be consistent with the community plan, in particular through the provision of community parking lots as mitigation for the loss of on-street parking.

Table 3.7-4. Assessment of Alternatives' Consistency with KBCP Parking Goals

Kings Beach Community Plan Goals, Objectives and Policies	Alternatives			
	Alternative 1		Alternatives 2, 3, and 4	
	Consistency with Community Plan	Discussion	Consistency with Community Plan	Discussion
Policy 1c: Implement a parking management program that provides: adequate parking, limits traffic, considers connections between parking lots, encourages community parking lots, and complements transit.	No	Not implemented	Yes	With mitigation, lots would effectively replace some or all of existing on-street parking. Detailed planning of replacement parking lots should incorporate the items identified in this policy.
Objective 2: Provide for sufficient capital improvements to meet the level of service target, meet the target for VMT reductions, and to provide adequate parking facilities as development occurs in the Community Plan area.	Not Applicable	The project is not intended to address parking for development.	Not Applicable	Does not meet level of service target. Project not intended to address VMT reduction, or to address parking associated with development.
Policy 8b: Parking within Kings Beach Commercial Community Plan should encourage the consolidation of off-street public parking within the commercial streets.	No	Not implemented	Yes	With mitigation, lots would effectively replace some or all of existing on-street parking.
Source: North Tahoe Community Plan, TRPA, Adopted April 1, 1996. LSC Transportation Consultants, Inc. KB Com Plan Consistency for Parking.wb3.				

3.8 Land Use and Planning

3.8.1 Affected Environment

3.8.1.1 Existing Land Uses

The action area consists of a mix of commercial, recreation, and residential uses. Small- to medium-sized undeveloped parcels are interspersed with developed uses throughout the action area. Additionally, the action area includes Kings Beach State Recreation Area, operated by the North Tahoe Public Utility District (NTPUD), and Griff Creek. Local businesses, including motels, restaurants, retail shops, and gas stations, are located mainly along SR 28. Although developed, several parcels feature closed businesses, demolished buildings, and vacant buildings for rent.

Land uses north of the action area are primarily residential and include single- and multi-family units. The land in this area gradually rises towards the Sierra Nevada. Much of the land to the west of Chipmunk Street along SR 28 is flat and gently curved along the shoreline of Lake Tahoe. To the east of Chipmunk Street, SR 28 begins to climb as it crosses into Nevada. Beyond Speckled Street, north of SR 28 and east of SR 267, the land is undeveloped and forested. The land east of Park Lane, along the eastern terminus of the action area, becomes more rugged and rises to a steep ridge that remains undeveloped and forested. As SR 28 progresses both east and west, land use remains consistently commercial and residential along the roadway. For the purposes of this project, the Cooperative Agreement between Caltrans and Placer County states that Placer County will perform ROW activities and Caltrans ROW will provide oversight.

3.8.1.2 Land Suitable for Development and Development Trends

The action area contains few parcels of undeveloped lots, none larger than a few acres. According to the Kings Beach Community Plan, an inventory of the downtown area in 1994 identified an approximate total of 180,000 square feet of commercial floor space, 11,600 square feet of professional office space, and 380 tourist accommodation units.

The area was estimated to be 80% built out with few parcels of undeveloped acreage available. Additionally, 1.6 acres of land for use as residential, commercial, or multiple-use is available between Chipmunk and Beaver Streets. The various commercial uses within the action area along with the number of parcels for each type of commercial use are presented in Table 3.8-1.

Table 3.8-1. Commercial Uses within the Action Area

Description	Number of Parcels within Action Area
Vacant, Commercial	37
Hotels, Motels, and Resorts	27
Commercial Stores	22
Mobile Home Parks	10
Restaurants and Cocktail Lounges	9
Residences on Commercial	7
Service Stations	7
Offices, General	7
Banks, Savings and Loans, and Credit Unions	3
Parking Lots	3
Auto Sales, Repair	1
Mini Markets with Gas	1
Mini Markets without Gas	1
Suburban Stores	1
Shopping Centers	1
Golf Courses	1
Fast Food Restaurants	1
Theaters, Bowling Alleys	1
Lodges and Halls	1
Miscellaneous Commercial	3

The Kings Beach Community Plan identifies three Special Areas with individual development objectives. Special Area 1 is the downtown commercial area located along SR 28, with a land use classification of commercial/public service. Special Area 2

includes the east and west entries into the downtown area with an emphasis on commercial services for local residents. Residential uses, mainly single-family (one unit per parcel maximum) are also allowed. Special Area 3 is the area generally defined geographically in the Kings Beach State Recreation Area located between SR 28 and Lake Tahoe along the middle of the downtown area. Uses in Special Area 3 are oriented toward outdoor recreation with limited commercial activity. The majority of the remaining area is designated as mixed residential, and goals are to upgrade existing structures and develop a more even density distribution.

3.8.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

Caltrans' Relocation Assistance Program is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and *49 CFR Part 24*. The purpose of Relocation Assistance Program is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Information regarding Caltrans' Relocation Assistance Program may be found at:

<<http://www.dot.ca.gov/hq/row/rap/index.htm>>.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (*42 U.S.C. 2000d, et seq.*). Please see Appendix R for a copy of the Caltrans' Title VI Policy Statement; additional information regarding Caltrans' Title VI Policy Statement may be found at: <http://www.dot.ca.gov/hq/bep/title_vi/t6_resource_dir.htm>.

Land use planning in the action area is governed by the *Placer County General Plan*, which comprises 10 elements. The general plan includes goals, standards, policies, implementation systems, and objectives that guide growth and development in areas under Placer County's jurisdiction. The land use element, containing land use designations and policies guiding development in the action area, was updated and

revised in 1994. The existing land use plan for the Kings Beach area, found in the Kings Beach Community Plan, was adopted by the TRPA and Placer County in 1996. Lands in the vicinity of the action area are generally designated for residential, commercial, and recreational uses (Placer County, Tahoe Regional Planning Agency, and North Tahoe Community Plan Team 1996) and are illustrated in Figure 3.8-1.

County and community general plan policies relevant to the proposed action are described and evaluated in *Section 3.8.3, Environmental Consequences*, below.

Regional transportation planning for the area is conducted by the TRPA. TRPA also assists with planning for land use, housing, noise, natural hazards, air quality, water quality, community design, and bicycle networks. TRPA also has authority through the Tahoe Metropolitan Planning Organization.

3.8.3 Environmental Consequences (Including Temporary, Direct, Indirect)

Land use impacts evaluated in the following sections include direct and indirect conflicts with existing and planned uses, growth inducement impacts, and consistency with Placer County and Kings Beach general plans. NEPA criteria for determining significance for land use listed in *Title 40, CFR, Section 1508.27*.

Impact LU-1: Potential Inconsistency with Existing Land Uses

Alternative 1

Alternative 1 is the no-build alternative, and under this alternative it is assumed that the existing conditions of the action area would continue to persist and that the proposed action would not be constructed. No ROW acquisitions would result under Alternative 1.

Alternative 2

Under Alternative 2, the ROW proposed for the SR 28 improvements would not require full acquisitions of any parcels. Partial acquisitions under Alternative 2 would be required from 41 properties. Most of these acquisitions would consist of sliver or corner acquisitions from parcels adjacent to the existing SR 28 ROW and would not result in

substantial effects on existing land uses, but several of the acquisitions would displace uses within the existing or proposed new ROW. The size of the acquisitions for the affected parcels would be limited to a few feet. The following is a summary of the potential impacts on the parcels that would be most affected by partial acquisitions under Alternative 2.

Assessor's Parcel Numbers (APN)

- **APN 117-180-007/117-180-006 (Sheet 1):** Vehicular access from SR 28 to the commercial building located at 8001 and 8011 SR 28 may be affected by this alternative. Patrons of Stone's Automotive would have to access the parking lot from SR 267, as entry along SR 28 may be discontinued.
- **APN 090-071-026/090-071-025 (Sheet 1):** The commercial property located at 8079 SR 28 would lose areas south and southwest of the building that is used by customers as a parking area. Loss of this area would require customers to access parking along Secline Street or along the proposed parking lane further east on SR 28. This would reduce but not eliminate parking for the ACE Hardware store. The economic impact would be small even without replacement parking, however the available parking would be reduced from 11 spaces to 6 spaces which could cause a loss of business if nearby replacement parking is not made available.
- **APN 090-123-023 (Sheet 3):** SR 28 improvements along this property, currently a 7-Eleven, would restructure the area of the intersection such that vehicular access would no longer be available from SR 28. Access would be provided from Coon Street and two parking spaces would be displaced due to the widening of this entry. However, the parking lot would be created such that 6 additional spaces would be made available for customers.
- **APN 090-072-023/090-072-024.** SR 28 improvements and right-of-way acquisition would displace the entire amount of parking used by customers of the business located at 8160 SR 28. The five available spaces in front of the Crosswinds café

would be removed. This would be a potentially major economic impact on the business if replacement parking is not located within one block of the restaurant.

- *APN 090-080-001/ 090-080-002.* The right-of-way acquisitions would displace parking spaces in front of the commercial building located at 8338 SR 28. These spaces make up the entire amount of parking available for the building. There are three businesses located in this building: Jason's T-shirts & swim, Dana Sports and Ski, and Inside outfitters. Loss of street-side parking would have a negative effect on these businesses, however there is some parking on the side of the building and there is a large parking lot behind the building. If customers were allowed to use the parking behind the building the impact on the businesses would be minor. If customers are not allowed to use the lot behind the building, replacement parking would need to be located within a block of the businesses to avoid a major impact on the businesses.
- *APN 090-075-018.* SR 28 improvements would affect the entire area that currently serves as parking for customers of the business located at 8345 SR 28. Parking spaces would be displaced by the installation of the sidewalk area. The five available spaces in front of Las Panchitas café would be removed. This would be a potentially major economic impact on the business if replacement parking is not located within one block of the restaurant. It appears that access to the restaurant would be maintained from SR 28 and that there is space at the back of the building along Trout Avenue that could be used as replacement parking. This would likely require eliminating access from Trout Avenue.
- **APN 090-142-002 (Sheet 4):** May lose vehicle access along SR 28. No break in the sidewalk is planned for the parcel, and access may be entirely pedestrian. Nearby breaks in front of APNs 090-142-001 and 090-142-024 may serve as alternative points of entry.

In addition to this impact, ROW acquisition and roadway improvements would result in reduced setbacks and landscaping impacts on the remaining parcels along SR 28.

Although small portions of some existing structures encroach on the current ROW, this alternative would not displace any residences or buildings. As previously indicated, several of the acquisitions would displace uses within the existing or proposed new ROW. Implementation of Mitigation Measures LU-1 and TRA-2, as described in *Section 3.6, Traffic*, would minimize this effect.

Alternative 3

Under Alternative 3, there would be no requirement for full acquisition of any parcels. In addition to land acquisitions required for Alternative 2, partial acquisitions under Alternative 3 would be required from three additional properties. These acquisitions consist of frontage or corner acquisitions from parcels adjacent to the existing SR 28 ROW and would not result in substantial effects on existing land uses. The estimated size of the acquisitions for affected parcels would be limited to a few feet. With the following exceptions, the direct land use effects resulting from partial acquisitions under Alternative 3 would be similar to those described for Alternative 2, although effects on setbacks and landscaping for specific parcels could vary slightly because of differences in amounts of property required for the proposed ROW under Alternative 3. Following is a summary of the major differences in land use effects between the two alternatives for the parcels most affected by the proposed action.

Assessor's Parcel Numbers

- **APN 090-123-008:** SR 28 improvements would not create a break in the pavement directly in front of the building that would result in a change of access for customers of this business.
- **APN 090-123-023:** SR 28 improvements would not call for the parking lot restructuring and access change required under Alternative 2. Under this alternative, only a small amount of frontage acquisition would be necessary to create the corner sidewalk in front of the business located at 8593 SR 28.

- **APN 090-135-030:** SR 28 improvements along the area between the Kings Beach State Recreation Area and its parking lot would create a pedestrian entry and require a larger amount of frontage than under Alternative 2.

As described for Alternative 2, ROW acquisition and roadway improvements under Alternative 3 would result in reduced setbacks and landscaping impacts on the remaining parcels along SR 28. As previously indicated above, partial acquisitions would be required under Alternative 3. Implementation of Mitigation Measures LU-1 and TRA-3, as described in *Section 3.6, Traffic*, would minimize this effect.

Alternative 4

Under Alternative 4, there would be no requirement for full acquisition of any parcels. Partial acquisitions under Alternative 4 would be similar to Alternative 2 with two major exceptions. These acquisitions would consist of frontage or corner acquisitions from parcels adjacent to the existing SR 28 ROW, and most would not result in substantial effects on existing land uses, but several of the acquisitions would displace uses within the existing or proposed new ROW. The estimated size of the acquisitions for affected parcels would differ from Alternative 2 by no more than a few feet.

The direct land use effects resulting from partial acquisitions under Alternative 4 would be similar to those described for Alternative 2, although effects on landscaping for specific parcels could vary slightly because of differences in the proposed ROW under Alternative 4. Following is a summary of the major differences in land use effects between the two alternatives for the parcels most affected by the proposed action.

Assessor's Parcel Number

- **APN 090-071-029:** SR 28 improvements would implement a ROW acquisition that would change access to the business located at 8299 SR 28.
- **APN 090-134-029:** Under this alternative, SR 28 improvements would create a single break in the pavement front of the business located at 8700 SR 28 (as opposed

to two breaks under Alternative 2) that would result in a change of access for customers of this business.

As described for Alternative 2, ROW acquisition and roadway improvements under Alternative 4 would not result in reduced setbacks and fencing and landscaping impacts on the remaining parcels along SR 28. As previously indicated above, partial acquisitions would be associated with Alternative 4. Implementation of Mitigation Measures LU-1 and TRA-2, as described in *Section 3.6, Traffic*, would minimize this effect.

Impact LU-2: Potential Inconsistency with Local and Regional Plans and Policies

Alternative 1

Under Alternative 1, no project would be constructed. Alternative 1 would result in an adverse effect resulting from inconsistencies with local plans.

Alternative 2

The following section contains an evaluation of Alternative 2's consistency with plans and policies adopted by the Town of Truckee, Placer County, and TRPA.

Kings Beach Community Plan

Placer County and TRPA adopted the *Kings Beach General Plan* in 1996. The plan's vision statement for land use states, "a key part of the Community Plan is to provide the opportunity and incentive to upgrade and expand the businesses of Kings Beach. The Land Use Element envisions a luster of distinct areas within Kings Beach unified with specific design elements (Placer County, Tahoe Regional Planning Agency, and North Tahoe Community Plan Team 1996)." The following goals, objectives, and policies from the community plan apply specifically to the proposed action.

Planning Considerations

1: The commercial development needs to be upgraded and revitalized.

2: The commercial development is a “strip” and the four-lane highway has adversely affected the character of the community. Programs should be implemented to facilitate pedestrian activity along the State Highway.

5: Scenic Roadway Unit 20 and Scenic Shoreline Unit 21 are within this Plan area and the roadway unit is targeted for scenic restoration as required by the scenic threshold.

This action would make the Kings Beach community more accessible for bicyclists and pedestrians, which in turn would benefit commercial development. The proposed action is also consistent with the units targeted for scenic restoration as landscaping and other visual improvements are included under this alternative. Therefore, the proposed action complies with the above stated planning considerations.

Objectives and Special Policies

2b: All projects shall be subject to the Placer County Standards and Guidelines for Signage, Parking and Design (Appendix B [of the Community Plan]).

2c: For the Placer County project review process for design review and signage, retain the existence and participation of the North Tahoe Design Review Committee. TRPA should consider the recommendations of the Committee prior to taking action on any project subject to Committee review.

3b: The Redevelopment Agency should concentrate on the downtown area and other areas in need of upgrading. The focus should be on rehabilitation, code enforcement, provision of low-to-moderate housing, façade improvement, property assembly, parks and recreation facilities, parking, beach access, and infrastructure improvements.

6a: Projects with existing coverage in excess of 75% of their project area shall be required to provide an increase in landscaping equal to 5% of the project area. The landscaping requirement shall be met within the project area or, if not feasible, off-site in a related area. This condition may be waived by the Design Review Committee, if the project is part of an assessment district which is providing the required increase in landscaping or the landscaping requirement has been met by a previous approval.

7a: The Design Review Committee shall consider the recommendations of the Scenic Target section of Chapter IV when reviewing projects and, where appropriate, incorporate conditions of approval to implement the

recommendations of the Scenic Target section or the equal or superior recommendations of the applicant.

8a: Projects located between the designated scenic corridors and Lake Tahoe shall not cause a reduction of the views of Lake Tahoe from the corridors. TRPA may consider as an alternative, offsite improvements if it is determined there is a net increase in the lake views within the scenic unit.

Alternative 2 would adhere to the above policies. It would be consistent with the Placer County Standards and Guidelines for Signage, Parking and Design and would implement the recommendations of the North Tahoe Design Review Committee. This alternative would have beneficial impacts on recreation and will provide the necessary increase to landscaping to improve scenic resources. No views of Lake Tahoe would be obstructed as a result of the proposed action. Therefore, the proposed action complies with these objectives and policies.

Recreation Objectives and Policies

5B-2: Increase the total mileage of bicycle trails available for public use in the General Plan area, complete linkages in the system, complete a trail through Kings Beach, and complete alignments as established in the North Tahoe PUD Master Plan.

5C-2: Recreation Trail System - The Plan requires the implementation of a recreational/ bike trail system mostly located along the Lake and State Route 28. Also, trails connecting the elementary school with the lake should be constructed. The map shows possible alignments. (2 miles/50 DCP)

Alternative 2 increases bicycle mobility and therefore supports the above recreation objectives.

Public Services Objectives and Policies

6B-1: The supporting infrastructure (e.g., roads, parking, drainage, fire, schools, and police) of the Community Plan shall be designed for a planned buildout projected for twenty years.

The proposed action supports the buildout of Kings Beach as planned in the Kings Beach Community Plan. Thus, Alternative 2 is consistent with this policy.

Implementation Elements

Implementation policies regarding highway, parking, sidewalk, recreational, restoration, scenic, and water quality improvements also apply to the proposed action. Specific information regarding these implementation objectives and policies can be found in Chapter 7 of the Community Plan.

Transportation Objectives and Policies

3B-1: Provide a safe and efficient transportation system for the residents of the Kings Beach area and others who use the system.

Implementation of Alternative 2 would improve the safety and efficiency of transportation for Kings Beach residents and visitors.

3B-1a: The level of service on major roadways (i.e., arterial and collector routes as defined by Placer County) shall be LOS D, and signalized intersections shall be at LOS D (Level of Service E may be acceptable during peak periods, not to exceed four hours per day).

Alternative 2 includes two roundabouts located at the intersections of SR 28/Bear Street and SR 28/Coon Street, which are both projected to operate at LOS B in 2028. Roadway LOS, however, would not meet the LOS D standard in both 2008 and 2028 projections. Alternative 2 is therefore considered to be inconsistent with policy 3B-1a.

3B-1b: Provide for the various functions currently accommodated in the public right-of-ways (e.g., through vehicle traffic, parking search, pedestrian activity, bicyclist activity and parking).

Alternative 2 allows for currently accommodated functions of SR 28 while improving pedestrian and bicycle use. Parking elements are still considered and parking lanes are included as part of Alternative 2. Thus, Alternative 2 is considered to be consistent with policy 3B-1b. Therefore, this is not considered an adverse effect and no mitigation is required

3B-1c: Implement a parking management program that provides: adequate parking, limits traffic, considers connections between parking lots, encourages community parking lots, and complements transit.

Alternative 2 would not impede the implementation of policy 3B-1c.

3B-1d: When designing transportation improvements, consider traffic calming strategies such as alternate truck routes, speed reductions on SR 28, entry features, highlighted pedestrian crosswalks, etc.

The design of Alternative 2 calls for a decrease in the number of lanes from four to three as well as the addition of roundabouts at the intersections of SR 28/Bear Street and SR 28/Coon Street. Both of these elements are expected to slow and calm traffic along SR 28. Additionally, the inclusion of highlighted crosswalks, as planned in Alternative 2, would add to this impact. Therefore, Alternative 2 is considered to be consistent with policy 3B-1d.

3B-3a: The Plan should provide for the in-fill of existing developed areas that would utilize existing transportation facilities, while promoting alternatives to the private automobile.

Alternative 2 would increase bicycle and pedestrian mobility in the Kings Beach area, which is consistent with policy 3B-3a.

3B-5: The Plan should develop sidewalks along both sides of SR 28 and local commercial streets. This includes landscaping, lighting, trash receptacles and bicycle racks.

Alternative 2 does include plans to install sidewalks along both sides of SR 28. Included in the design are plans for landscaping, lighting, and other pedestrian oriented features. Alternative 2 is considered to be consistent with policy 3B-5.

3B-5a: Implement a program through review of projects or preferably through improvement districts that provides for the street improvements.

Alternative 2 is one of four alternatives considered for SR 28 improvement. Therefore, Alternative 2 is considered to be consistent with policy 3B-5a.

3B-6a: Provide for a system of bicycle recreation trails in the community plan improvement program.

Alternative 2 facilitates additional bicycle mobility in the Kings Beach area and would not impede policy 3B-6a.

3B-8a: Driveways and access-egress points to commercial businesses along State Route 28 should be coordinated to reduce the number of turn movements and improve traffic flow along State Route 28.

Alternative 2 includes dedicated left turn lanes, which facilitate turning and improve traffic flow. Therefore the proposed action complies with policy 3B-8a.

3B-8b: Policy: Parking within the Kings Beach Commercial Community Plan should encourage the consolidation of off-street public parking within the commercial areas.

This is not considered an adverse effect and no mitigation is required. Please see Section 3.7, *Parking*, Table 3.7-1, and Table 3.7-2 for a detailed discussion of parking in the Kings Beach commercial area.

Streets and Highways

3C-1: State Route 28 Improvements – State Route 28 shall be improved to include four lanes (two in each direction with no center turn lane), Class II bikeways on each side, parallel parking in the pedestrian district, medians in the entry areas, curb, and sidewalks. The construction of the highway improvements will be in conjunction with the construction of sidewalks, curbs, drainage system, landscaping, utility undergrounding and lighting.

The design of Alternative 2, which calls for a decrease in the number of lanes from four to three, would be inconsistent with Policy 3C-1. An amendment to the Transportation Element of the Kings Beach Community Plan for Alternative 2, if adopted, to call for a reduction to three travel lanes on SR 28 would be required. Implementation of Mitigation Measure LU-2 will minimize this effect.

3C-2: Local Street Improvements – Local commercial streets shall be improved to include two travel lanes, parallel parking, and sidewalks. Some streets such as Brook may become one way with elimination of parallel parking.

3C-3: State Route 28/267 Intersection Improvement – This intersection will be upgraded with turn lanes, scenic improvements, and medians.

3C-4: Coon Street Intersection Improvement – This four way signalized intersection on State Route 28 will be upgraded with turn lanes and scenic improvements.

3C-5: Bear Street Intersection Improvement – This three way intersection on State Route 28 will be redesigned to include turn lanes and a conversion of Brook Street to one way.

Alternative 2 would include improvements to SR 28 including bike lanes, sidewalks, turn lanes, and scenic improvements. Traffic signals at the Coon Street intersection and the Bear Street intersection would also occur under this alternative.

Parking Facilities

1: Kings Beach Parking – To meet parking requirements, compensate for lost parking due to State Route 28 improvements, achieve targets, and to provide for additional development, a series of parking lots are to be constructed. The lots shown in Figure 3 [of the Community Plan] are conceptual in design and location and will require further study. The location and size of the parking shall be based on an area-wide analysis/program developed by Placer County. The CIP lists the important public parking lots.

This is not considered an adverse effect and no mitigation is required. Please see Section 3.7, *Parking*, Table 3.7-1, and Table 3.7-2 for a detailed discussion of parking in the Kings Beach commercial area.

Pedestrian Facilities

1: State Route 28 Pedestrian Facilities – The construction of sidewalks on State Route 28 is shown in Figure 4 [of the Community Plan]. The conceptual design of the sidewalk system for the pedestrian area and the entry areas is shown in the Kings Beach Design Standards and Guidelines (Appendix B [of the Community Plan]) and includes landscaping, lighting, trash receptacles, and bike racks.

2: Local Commercial Street Pedestrian Facilities – The construction of sidewalks on local commercial streets is shown in Figure 3 [of the Community Plan]. The conceptual design of the sidewalk system is shown in the Kings Beach Design Standards and Guidelines (Appendix B [of the Community Plan]) and includes landscaping, lighting, trash receptacles, and bike racks.

Improvements to pedestrian facilities would occur under Alternative 2. Sidewalks would be widened, which would increase pedestrian mobility. Crosswalks would be provided to increase pedestrian safety. Landscaping along both sides of SR 28 is also included in this alternative.

In general, implementation of Alternative 2 would improve the safety and efficiency of transportation for Kings Beach residents and others. The proposed alternative is considered to be consistent with each of the above objectives and policies as stated in the Kings Beach Community Plan.

Placer County General Plan

The nine elements of the *Placer County General Plan* were revised in 1994. The following goals, objectives, and policies from the Transportation and Circulation element apply specifically to the proposed action.

Goal 3A: To provide for the long term planning and development of the County's roadway system to ensure the safe and efficient movement of people and goods.

Implementation of Alternative 2 would enhance and facilitate bicycle and pedestrian mobility along SR 28 through Kings Beach between the intersections of SR 28/SR 267 and SR 28/Chipmunk Street. The proposed alternative is considered to be consistent with Transportation and Circulation Goal 3A. Therefore, this is not considered an adverse effect and no mitigation is required.

3.A3: The County shall require that roadway rights-of way be wide enough to accommodate the travel lanes needed to carry long-range forecasted traffic volumes (beyond 2010), as well as any planned bikeways and required drainage, utilities, landscaping, and suitable separations.

3.A.10: The County's level of service standards for the State highway system shall be no worse than those adopted in the Placer County Congestion Management Program (CMP).

3.A.15: Placer County shall participate with other jurisdictions and Caltrans in the planning and programming of improvements to the State Highway system, in accordance with state and federal transportation planning and programming procedures, so as to maintain acceptable levels of service for Placer County residents on all State Highways in the County.

The proposed action is included in the adopted Lake Tahoe Basin Regional Transportation Plan (RTP): 2004–2027 (Tahoe Regional Planning Agency and Tahoe Metropolitan Planning Organization 2004). The RTP identifies the proposed action as WQ-24: SR 28/Kings Beach curb, gutter, water collection and treatment, bicycle lanes, and landscaping/lighting.

Additionally, TRPA dictates that community plans will only be adopted after review to ensure compliance with standards set forth by the agency. The Kings Beach Community Plan was reviewed and adopted in 1996; thus, the elements, goals, and policies contained within the community plan correspond to those established by TRPA. Therefore, this is not considered to be an adverse effect and no mitigation is required.

Alternative 3

Alternative 3's consistency with policies of the Kings Beach Community Plan or the *Placer County General Plan* is similar to those identified for Alternative 2, except an amendment to the Transportation Element of the Kings Beach Community Plan to maintain consistency with Policy 3C-1 would not be required.

Alternative 4

Alternative 4's consistency with policies of the Kings Beach Community Plan or the *Placer County General Plan* is similar to those identified for Alternative 2.

Impact LU-3: Impacts on Parking Availability

Alternative 1

Under Alternative 1, there would be no construction and no adverse effects on parking availability. No mitigation is required.

Alternative 2

Under Alternative 2, parking impacts would include both public and private properties located along SR28. Although Alternative 2 provides for on-street parking lanes along both sides of SR28, parking would be prohibited during the summer season. This would eliminate a total of 202 parking spaces located on public property along SR 28 during the summer.

Alternative 2 would also reduce access to existing perpendicular and angled parking spaces on private property currently accessed directly off the state highway. Although individual properties would generally be provided with curb cuts to access full driveways, many existing spaces accessed off of the highway would be effectively eliminated. A net loss of 78 private spaces would result from the implementation of Alternative 2. This impact is considered less than significant because Placer County has committed to compensating for parking spaces that would be lost as a result of either build alternative (see discussion under *Section 3.7*).

Alternative 3

Unlike Alternative 2, the on-street parking lanes would be provided year-round under Alternative 3 such that parking impacts would be similar to Alternative 2 with the following exceptions.

- The anticipated parking impact on APN 090-123-023 under Alternative 2 would not occur under Alternative 3.
- The total anticipated loss of parking on public and private property under Alternative 3 is expected to equal 172 spaces.

This impact is considered less than significant because Placer County has committed to compensating for parking spaces that would be lost as a result of either build alternative (see discussion under *Section 3.7*).

Alternative 4

The parking effects of Alternative 4 are identical to those described in Alternative 2 with one exception.

- No on-street parking spaces would be provided along SR-28, effectively prohibiting on-street parking year-round rather than solely in summer.

This impact is considered less than significant because Placer County has committed to compensating for parking spaces that would be lost as a result of either build alternative (see discussion under *Section 3.7*).

3.8.4 Mitigation, Avoidance, Minimization, and Compensation Measures

This section describes design features included in the proposed action and mitigation measures that Placer County will implement as part of the proposed action to reduce adverse effects related to land use, consistency with general plan policies, circulation and access, parking, public services, and residential displacements.

Mitigation Measure LU-1: Implement a Community Involvement and Public Participation Plan

Placer County will implement a Community Involvement and Public Participation Plan with the following measures to mitigate for the land use impacts of the proposed action:

- Create a CIPP in accordance with Caltrans' Tahoe Basin Public Communication and Outreach Guidelines. Placer County will identify stakeholders within the action area and create a CIPP that will allow for coordination between local agencies and generate public awareness about the proposed action. By providing the following outreach mechanisms, the CIPP would minimize construction related impacts through advanced planning and

public participation. Caltrans' Tahoe Basin Public Communication and Outreach Guidelines recommend that the following public outreach actions be included in the CIPP.

- Informational brochures or flyers sent to homeowners, renters, and business operators with information and updates regarding construction related details.
- Implementation of regularly conducted 'stakeholder wide' project development team (PDT) meetings. These meetings can also be used as a mechanism for spreading project related information to the constituencies of the various groups.
- Use of the local media outlets, including radio, newspaper, and television ads, to publicize the project and update information.

Mitigation Measure LU-2: Amend the Kings Beach Community Plan

Placer County and TRPA will amend Policy 3C-1 in the Transportation Element of the Kings Beach Community Plan to maintain consistency with Policy 3C-1, which will allow for a three-lane configuration on SR 28.

Mitigation Measure TRA-3: Implement Construction Traffic Management Plan during Construction

This mitigation measure is described in *Section 3.6, Traffic*.

3.8.5 Compliance with Tahoe Regional Planning Agency Code

TRPA Resolution No. 82-11, adopted August 1982, outlined the environmental threshold carrying capacities for the Lake Tahoe Region. The *environmental threshold carrying capacity* is defined in the following manner:

an environmental standard necessary to maintain significant scenic, recreational, educational, scientific, or natural value of the region or to maintain public health and safety within the region.

The thresholds set forth in Resolution 82-11 address the following nine components of the environment of the Tahoe Region: water quality, soil conservation, air quality, vegetation preservation, wildlife, fisheries, noise, recreation, and scenic resources. As

such, TRPA does not specifically include criteria for determining significance of land use. In meeting the needs and goals identified above, the proposed action will contribute to the achievement of planning goals at the community and regional level.

3.9 Noise

The information presented in this environmental noise analysis is based on the noise technical study—*Environmental Noise Analysis/Caltrans Protocol Technical Analysis, SR 28 Kings Beach Corridor Improvement* (Appendix N), prepared for the proposed action—and focuses on the change in traffic noise levels and noise levels due to construction activities associated with the SR 28 corridor roadway improvements. This analysis has been prepared in accordance with the guidelines of the *Caltrans Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects* (Protocol); 23 CFR 772, which is incorporated by reference into the Protocol; Placer County noise guidelines; and TRPA noise policies, guidelines, and thresholds.

3.9.1 Affected Environment

3.9.1.1 Noise Terminology

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. *Noise* can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called *A-weighting*, which is written “dBA.” In general, human sound perception is such that a change in sound level of 3 dB is just noticeable; a change of 5 dB is clearly noticeable; and a change of 10 dB is perceived as doubling or halving sound level.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (L_{xx}), the day-night sound level (L_{dn}), and the community noise equivalent level (CNEL). Below are brief definitions of these measurements and other terminology used in this chapter.

- **Sound.** A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Ambient Noise.** The composite of noise from all sources near and far in a given environment exclusive of particular noise sources to be measured.
- **Decibel (dB).** A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Sound Level (L_{eq}).** The average of sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A weighted equivalent sound level (L_{eq}) is the energy average of A-weighted sound levels occurring during a 1-hour period and is the basis for noise abatement criteria (NAC) used by Caltrans.
- **Exceedance Sound Level (L_{xx}).** The sound level exceeded XX percent of the time during a sound level measurement period. For example L_{90} is the sound level exceeded 90% of the time and L_{10} is the sound level exceeded 10% of the time.
- **Maximum and Minimum Sound Levels (L_{max} and L_{min}).** The maximum or minimum sound level measured during a measurement period.

- **Day-Night Level (L_{dn}).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
- **Noise Abatement Criteria (NAC).** The Noise Abatement Criteria are used to identify traffic noise impacts under the requirements of 23 *CFR* 772. A traffic noise impact occurs at a receiver when the predicted design year noise level approaches or exceeds the NAC.

L_{dn} and CNEL values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered to be equivalent and are treated as such in this assessment. Typical indoor and outdoor noise levels are shown in Table 3.9-1.

Table 3.9-1. Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet fly-over at 1000 feet	— 110 —	Rock band concert
Gas lawn mower at 3 feet	— 100 —	
Diesel truck at 50 feet at 50 mph	— 90 —	Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Noisy urban area, daytime		Normal speech at 3 feet
Commercial area		
Heavy traffic at 300 feet	— 60 —	Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime	— 30 —	Library
Quiet rural nighttime	— 20 —	Bedroom at night
	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing
Source: California Department of Transportation 1998a.		

3.9.1.2 Noise Sensitive Land Uses in the Vicinity of the Action Area

The land uses adjacent to the project site include mixed land uses of residential, motel, church, commercial, and light industrial.

3.9.1.3 Existing Noise Environment

The existing noise environment in the action area is dominated by noise from traffic traveling on roadways within the action area, aircraft overflights, and recreational activities. The existing noise environment in the vicinity of the proposed action area was characterized through environmental noise monitoring and traffic noise modeling.

3.9.1.4 Environmental Noise Monitoring

A detailed site review was conducted in November 2004, while continuous 24-hour noise measurement data previously collected along the action area in August and October 2004

were utilized for this report. Traffic noise levels at representative noise-sensitive land uses were evaluated through continuous noise level measurements over a 24-hour period at two locations in the action study area (Figure 3.9-1).

The noise measurements were conducted to determine the relationship between the measured 24-hour CNEL traffic noise level and the peak hour L_{eq} noise levels, as well as comparison to the Sound 32 traffic noise modeling results (Figure 3.9-1). Graphic displays of the continuous hourly noise level measurements can be found in the project noise technical study, *Environmental Noise Analysis/Caltrans Protocol Technical Analysis, SR 28 Kings Beach Corridor Improvement* (Appendix N).

Sound measurement equipment consisted of Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters, which meet the pertinent specifications of the American National Standards Institute (ANSI) and the International Electrotechnical Institute (IEC) for Type 1 precision sound measurement systems. The measurement equipment was calibrated immediately before and after use.

3.9.1.5 Traffic Noise Modeling

Existing traffic noise was modeled using traffic data provided by the project transportation engineer, LSC Transportation Consultants, Inc. (2003), using the Sound-32 traffic noise prediction model. Table 3.9-2 summarizes the existing traffic noise levels, based upon the results of the Sound-32 traffic noise modeling, at select noise-sensitive receivers for the Year 2002. The locations of the noise-sensitive receivers are illustrated in Figure 3.9-2. The predicted existing background traffic noise levels at the selected noise-sensitive receivers range between 64 and 72 dBA, L_{eq} (average level) and between 60 and 67 dBA, CNEL. The results indicate that 19 of the 22 (86%) noise-sensitive receivers approach or exceed the Caltrans NAC criterion of 67 dBA, L_{eq} .

Based upon the 24-hour continuous noise measurement survey, the predicted CNEL values are expected to be approximately 1 dB less than the predicted L_{eq} values shown in Table 3.9-2. Based upon the predicted noise levels, the 60 dBA, CNEL traffic noise

contour is approximately 280 feet from the roadway centerline and approximately 240 feet from the roadway edge of pavement. This is consistent with the TRPA Plan Area Statement (PAS) criterion for SR 28 of 60 dBA, CNEL at a distance of 300 feet from the edge of the roadway pavement.

Table 3.9-2. Summary of Existing (2002) Modeled Traffic Noise Levels (Summer Conditions)

Receiver #	Land Use	Design Hour L _{eq} (dBA)	CNEL (dBA)	Caltrans NAC
R1	Sweetbriar Condominiums	65	64	B
R2	La Comunidad Unida/Little Bear Cottages	<u>70</u>	69	B
R3	Motel California	<u>66</u>	65	B
R4	Private Residence	<u>68</u>	67	B
R5	Caesar's Cottages	<u>71</u>	70	B
R6	Big 7 Motel	<u>71</u>	70	B
R7	Multifamily Residence	65	64	B
R8	Annie's Cottages	<u>71</u>	70	B
R9	Gold Crest Motel	<u>71</u>	70	B
R10	Snow Peak Lodge	<u>70</u>	69	B
R11	Crown Motel	<u>71</u>	70	B
R12	Falcon's Lodge	<u>72</u>	71	B
R13	Private Residence	<u>67</u>	66	B
R14	Private Residence	64	63	B
R15	North Lake Lodge	<u>71</u>	70	B
R16	Private Residence	<u>67</u>	66	B
R17	Private Residence/Office	<u>66</u>	65	B
R18	Private Residence	<u>71</u>	70	B
R19	Stevenson's Holiday Inn	<u>69</u>	68	B
R20	Ta-Tel Lodge	<u>68</u>	67	B
R21	North Shore Lodge	<u>70</u>	69	B
R22	Private Residence	<u>71</u>	70	B

Notes:

Bold = Exceeds Placer County/TRPA's noise level standard of 55 dBA, CNEL.

Underline = Approaches or Exceeds Caltrans NAC criterion of 67 dBA, L_{eq}.

Source: J.C. Brennan and Associates, Inc. 2006; LSC Transportations Consultants, Inc. 2003.

3.9.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

The following federal, state, and local regulations and policies are applicable to noise.

3.9.2.1 National Environmental Policy Act

NEPA and CEQA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the NEPA-23 *CFR* 772 noise analysis; please see Chapter 5 for further information on noise analysis under CEQA.

Under NEPA, impacts and measures to mitigate adverse effects must be identified, including impacts for which no mitigation or only partial mitigation is available. The Caltrans regulations discussed below constitute the federal noise standard.

3.9.2.2 FHWA Regulations (23 *CFR* 772)

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 *CFR* 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain NAC that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 3.9-3 lists the noise abatement criteria for use in the NEPA-23 *CFR* 772 analysis.

Table 3.9-3. Activity Categories and Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level (dBA, L_{eq})	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 Exterior	Developed lands, properties, or activities not included in categories A or B above
D	—	Undeveloped lands
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: California Department of Transportation 1998b.

Primary consideration is given to exterior areas. In situations in which no exterior activities are affected by traffic noise, the interior criterion (activity Category E) is used as the basis for noise abatement considerations.

Table 3.9-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

In accordance with Caltrans' Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, October 1998, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans

and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978 and the cost per benefited residence.

3.9.2.3 Placer County General Plan Noise Element

The Noise Element of the *Placer County General Plan* contains planning guidelines relating to noise. The noise element identifies goals and policies to support achievement of those goals. Policy 9.A.9 relates specifically to this project:

Policy 9.A.9. Noise created by new transportation sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 3.9-4 at outdoor activity areas or interior spaces of existing noise-sensitive uses.

Table 3.9-4. Placer County Noise Element: Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹	Interior Spaces	
	L_{dn}/C_{NEL} , dB	L_{dn}/C_{NEL} , dB	L_{eq} , dB ²
Residential	60 ³	45	–
Transient lodging	60 ³	45	–
Hospitals, nursing homes	60 ³	45	–
Theatres, auditoriums, music halls	–	–	35
Churches, meeting halls	60 ³	–	40
Office buildings	–	–	45
Schools, libraries, museums	–	–	45
Playgrounds, neighborhood parks	70	–	–

Notes:

¹ Where the location of outdoor activity areas is unknown, the exterior noise level standard will be applied to the property line of the receiving land use.

² As determined for a typical worst-case hour during periods of use.

³ Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/C_{NEL} or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/C_{NEL} may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: Placer County 1994.

The *Placer County General Plan* further states that noise created by new transportation noise sources, including roadway improvement projects, will be mitigated so as to not exceed the levels specified in Table 3.9-4 at outdoor activity areas or interior spaces of existing noise-sensitive land uses. Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table 3.9-4, Placer County requires that an acoustical analysis be conducted as part of the review process so that noise mitigation may be included in the project design. However, at the discretion of Placer County, the requirement for an acoustical analysis may be waived, provided that all of the following conditions are met.

- The development is for less than five single-family dwellings or less than 930 square meters (10,000 square feet) of total gross floor area for office buildings, churches, or meeting halls.
- The noise source in question consists of a single roadway or railroad for which up-to-date noise exposure information is available. An acoustical analysis will be required when the noise source in question is a stationary noise source or airport, or when the noise source consists of multiple transportation noise sources.
- The existing or projected future noise exposure at the exterior of buildings that will contain noise-sensitive uses or within proposed outdoor activity areas (other than outdoor sports and recreation areas) does not exceed 65 dBA, L_{dn} (or CNEL) prior to mitigation. For outdoor sports and recreation areas, the existing or projected future noise exposure may not exceed 75 dBA, L_{dn} (or CNEL) prior to mitigation.
- The topography in the action area is essentially flat; that is, noise source and receiving land use are at the same grade.
- Effective noise mitigation, as determined by Placer County, is incorporated into the project design to reduce noise exposure to the levels specified in Table 3.9-4. Such measures may include the use of building setbacks, building orientation, noise barriers, and the standard noise mitigations contained in the *Placer County Acoustical Design Manual*. If closed windows are required for compliance with interior noise levels standards, air conditioning or a mechanical ventilation system will be required.
- Also, Placer County will implement one or more of the following mitigation measures where existing noise levels significantly affect existing noise-sensitive land uses or where the cumulative increase in noise levels resulting from new development significantly affects noise-sensitive land uses.
- Rerouting traffic onto streets that have available traffic capacity and that do not adjoin noise-sensitive land uses.
- Lowering speed limits, if feasible and practical.

- Implement programs to pay for noise mitigation, such as low cost loans to owners of noise-affected property or developer fees.
- Acoustical treatment of buildings.
- Construction of noise barriers.

3.9.2.4 Placer County Noise Ordinance

Placer County's noise ordinance is found in Article 9.36 in the Placer County Code (2006a). Placer County's noise ordinance prohibits the creation of any sound that results in a 5 dBA increase in the ambient noise level, as measured at the property line of any affected sensitive receptor, or any sound that exceeds the sound level standards summarized in Table 3.9-5.

Table 3.9-5. Placer County Noise Ordinance Sound Level Standards

Sound Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq} , dBA	55	45

Noise from construction activities is also addressed in Placer County's noise ordinance. Section 9.36.030 stipulates that Construction activities between the hours of 6:00 a.m. and 8:00 p.m., Monday through Friday, and 8:00 a.m. and 8:00 p.m., Saturdays and Sundays, are exempt from Placer County's noise ordinance, provided that all construction equipment is fitted with factory installed muffling devices and that all construction equipment is maintained in good working order.

3.9.2.5 Kings Beach Community Plan

The KBCP was prepared as a joint effort between the TRPA, Placer County, and the community of North Tahoe and is designed to serve as the guiding doctrine for land use related decisions within Kings Beach. Pursuant to Chapter 14 of the TRPA Code of Ordinances, the KBCP supersedes certain plans and regulations (including noise) established by TRPA PASs and the TRPA Code for the area within the Community Plan

boundaries. For purposes of Placer County land use regulation, the KBCP and the *Placer County General Plan* and implementing ordinances will become one and the same. Upon adoption, the KBCP is intended to serve as the mutual plan for all regulatory authorities.

The KBCP establishes maximum noise level standards for the following areas within the Kings Beach area:

- SR 28 corridor: 55 dBA, CNEL (where applicable);
- Special Area 4: 55 dBA, CNEL;
- All areas of the KBCP area (except the SR 28 Corridor and Special Area 4): 65 dBA, CNEL;
- Shorezone tolerance districts 6 and 7: 55 dBA, CNEL; and
- Lakezone district: 55 dBA, CNEL.

3.9.2.6 Tahoe Regional Planning Agency Code of Ordinances, Chapter 23: Noise Limitations

Chapter 23 (Noise Limitations) from the TRPA Code of Ordinances establishes noise limitations for areas within TRPA's jurisdiction. The purpose of the noise chapter of the Code of Ordinances is to implement the Goal and Policies of the Noise Subelement of the Land Use Element and maintain the TRPA noise thresholds.

Section 23.2.A from the TRPA's Code of Ordinances establishes noise level standards (expressed in CNEL) that shall not be exceeded; projects that result in exceedences of the noise level standards shall not be approved by TRPA. In addition, Section 23.2.A stipulates that community noise levels shall not exceed levels existing on August 26, 1982, where such levels are known.

Section 23.8 stipulates that TRPA-approved construction or maintenance projects, or the demolition of structures, are exempt from TRPA's Code of Ordinances Noise Limitations (Chapter 23) if the activities occur between the hours 8:00 a.m. and 6:30 p.m.

3.9.2.7 Tahoe Regional Planning Agency Regional Plan for the Lake Tahoe Basin: Goals and Policies

The 1987 Regional Plan for the Lake Tahoe Basin describes the needs and goals of the region and provides statements of policy to guide decision making as it affects the region's resources and remaining capacities. The Regional Plan with all of its elements, as implemented through agency ordinances and rules and regulations, provides for the achievement and maintenance of the adopted environmental threshold carrying capacities (thresholds) while providing opportunities for orderly growth and development. The Goals and Policies contained within the Regional Plan establish thresholds applicable for areas within TRPA's jurisdiction.

TRPA noise thresholds are contained in the Land Use Element of Regional Plan. Noise thresholds have been established for aircraft noise sources; single-event noise sources (i.e., noise from boats, motor vehicles, motorcycles, off-road vehicles, and snowmobiles that occur in a nonregular or nonrepetitive manner); and community noise levels, which are used to determine land use compatibility. Because the predominant noise source associated with the proposed project is traffic noise from vehicles traveling on roadways in the action area, the community noise levels are most applicable to the proposed action. The TRPA community noise thresholds from the Regional Plan are summarized in Table 3.9-6.

Table 3.9-6. TRPA Community Noise Level Standards

Land Use Category/Transportation Corridor	Average Noise Level or CNEL Range (dBA)
Land use category	
High Density Residential Areas	55
Low Density Residential Areas	50
Hotel/Motel Areas	60
Commercial Areas	60
Industrial Areas	65
Urban Outdoor Recreation Areas	55
Rural Outdoor Recreation Areas	50
Wilderness and Roadless Areas	45
Critical Wildlife Habitat Areas	45
Transportation corridor^{1, 2}	
Highway 50	65 ³
Highways 89, 207, 28, 267 and 431	55 ³
South Lake Tahoe Airport	60 ⁴

Notes:

Background noise levels will not exceed the noise levels specified in this table.

¹ It shall be a policy of the TRPA Governing Board in the development of the Regional Plan to define, locate, and establish CNEL levels for transportation corridors.

² Recommended CNEL levels for transportation corridors.

³ This recommended threshold overrides the land use CNEL thresholds and is limited to an area within 300 feet from the edge of the road.

⁴ This recommended threshold applies to those areas impacted by the approved flight paths.

Source: Tahoe Regional Planning Agency 2004b.

As a form of zoning, the TRPA has divided the Lake Tahoe Region into more than 175 separate plan areas. Boundaries for each plan area have been established based upon similar land uses and the unique character of each geographic area. For each plan area, a “Statement” (PAS) is made as to how that particular area should be regulated to achieve regional environmental and land uses objectives. The project corridor is located within Plan Areas 029 (Kings Beach Commercial). As part of each “Statement,” an outdoor standard of 60 dBA, CNEL is established based upon the “Thresholds.” However, the PAS noise level criterion is the ultimate standard.

3.9.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

3.9.3.1 Study Methods and Procedures

Study methods and procedures used in this analysis are consistent with requirements and guidance provided in 23 *CFR* 772 and the Protocol. The steps to evaluate traffic noise impacts are discussed in the noise technical study prepared for the proposed action (Appendix N). Based upon Caltrans' Protocol, the proposed action is considered a Type 1 project. A Type 1 project is defined in 23 *CFR* 772 as either of the following:

- A proposed federal or federal-aid highway project for construction of a highway on a new location.
- The physical alteration of an existing highway that significantly changes the horizontal or vertical alignment or increases the number of through traffic lanes.

FHWA has clarified its interpretation of Type I projects by stating that a Type I project is any project that has the potential to increase noise levels at adjacent receivers. This type of project includes projects to add interchanges, ramps, auxiliary lanes, or truck-climbing lanes to an existing highway. A project to widen an existing ramp by a full lane width is also considered a Type I project. Caltrans extends this definition to include state-funded highway projects. This project is considered a Type I project because it would add lanes, and therefore capacity, to an existing highway.

The proposed action has also been determined to pass the screening procedures for determining the need for a Traffic Noise Impact Analysis and is therefore required to include a Traffic Noise Impact Analysis.

Selection of Receivers

For the purposes of this analysis, twenty-four (24) receiver sites were selected for evaluating potential noise impacts. The receiver sites were selected to evaluate potential

traffic noise impacts at all noise-sensitive receivers (Category B of the Protocol) within the APE. Figure 3.9-2 shows the receiver locations.

Noise Prediction Methodology

For the purposes of this analysis the Existing and Future Year 2028 noise environments have been evaluated for each of the alternatives. To describe existing and projected peak hour traffic, noise levels were estimated using traffic data provided by the project transportation engineer, LSC Transportation Consultants, Inc. (2003), and the Sound-32 traffic noise prediction model. The Sound-32 Model is the Caltrans-coded version of the FHWA's Stamina 2.0 and Optima traffic noise prediction programs. The current version of Sound-32 model was developed to predict hourly L_{eq} values for free-flowing traffic conditions and is considered to be accurate within 1.5 dB. Speeds along the route were based upon travel speeds observed in the field in September 2004 and January 2005, and truck mix percentages were based upon Caltrans 2003 truck count data for SR 28 and SR 267 (California Department of Transportation 2004). The Sound-32 Model was calibrated using the measured sound level data, actual traffic counts, and digitized geometric features for existing conditions, with the measured sound levels compared to modeled noise levels at field measurement site locations for model calibration. The analysis of Alternative 1 assumed future traffic volumes provided by the traffic consultant (LSC). Discussions with LSC indicated that the future no project and future plus project assumed full build out. Pavement conditions were assumed to be dry and in good condition, which is verified in that the noise measurement data of traffic the roadway correlated well with the modeled predicted noise levels. Based upon the noise measurement results, it can be expected that the 24-hour CNEL value due to traffic is approximately 1 dB below the peak hour traffic noise levels. Changes in geometry along the project route, based upon proposed improvements to the corridor and interchange, were provided by the project traffic consultant. Changes in the geometry are based upon the descriptions for each of the alternatives previously provided in this report.

Criteria for the Determination of Impacts

Potential noise issues include exposing people to noise levels exceeding existing standards, exposure of people to excessive ground vibrations, or substantial increases of ambient noise levels. To evaluate adverse traffic noise effects associated with implementation of the proposed action, predicted noise levels were compared to the applicable noise level criteria.

Impacts under NEPA were evaluated using guidance provided by the FHWA (Federal Transit Administration 1995). FHWA NEPA guidance states that the significance of noise impacts identified under 23 *CFR* 772 must be identified based on the context and intensity of the noise impacts. As previously indicated, a 3 dB change is generally considered to be the threshold of a barely perceptible increase in noise. Consequently, this threshold is used when evaluating impacts under NEPA.

3.9.3.2 Evaluation of Noise Impacts

Sound-32 model was employed to evaluate future near-term (2008) and future year 2028 traffic noise levels under each of the alternatives. The traffic noise modeling results are presented in Tables 3.9-7 and 3.9-8. Table 3.9-7 summarizes predicted future near-term (2008) traffic noise levels without the project and predicted future near-term traffic noise levels under each of the alternatives, and it compares the build alternative noise levels to the without project condition. Table 3.9-8 summarizes the predicted future year (2028) traffic noise levels without the project, predicted future year traffic noise levels under each of the alternatives, and compares the build alternative noise levels to those without the project conditions.

Impact NZ-1: Generation of Construction Noise in Excess of Standards

Alternative 1

No construction activities would occur under Alternative 1. Consequently, there is no impact.

Table 3.9-7. Summary of Near-Term (2008) Modeled Traffic Noise Levels and Comparison of Modeled Near-Term Alternative Traffic Noise Levels to No-Build (Alternative 1) Conditions

Receiver #	Land Use	Summer Conditions Modeled 2008 Traffic Noise Levels Compared to 2008 No-Build Conditions (dBA)										
		Alternative 1		Alternative 2			Alternative 3			Alternative 4		
		L _{eq}	CNEL	L _{eq}	CNEL	ΔdB	L _{eq}	CNEL	ΔdB	L _{eq}	CNEL	ΔdB
R1	Sweetbriar Condominiums	<u>66</u>	65	<u>66</u>	65	0	<u>66</u>	65	0	<u>66</u>	65	0
R2	La Comunidad Unida/Little Bear Cottages	<u>70</u>	69	<u>70</u>	69	0	<u>70</u>	69	0	<u>70</u>	69	0
R3	Motel California	<u>66</u>	65	<u>66</u>	65	0	<u>66</u>	65	0	<u>66</u>	65	0
R4	Private Residence	<u>68</u>	67	<u>68</u>	67	0	<u>68</u>	67	0	<u>68</u>	67	0
R5	Caesar's Cottages	<u>71</u>	70	<u>71</u>	70	0	<u>71</u>	70	0	<u>71</u>	70	0
R6	Big 7 Motel	<u>71</u>	70	<u>71</u>	70	0	<u>71</u>	70	0	<u>71</u>	70	0
R7	Multifamily Residence	<u>66</u>	65	<u>66</u>	65	0	<u>66</u>	65	0	<u>66</u>	65	0
R8	Annie's Cottages	<u>71</u>	70	<u>71</u>	70	0	<u>71</u>	70	0	<u>71</u>	70	0
R9	Gold Crest Motel	<u>71</u>	70	<u>71</u>	70	0	<u>71</u>	70	0	<u>71</u>	70	0
R10	Snow Peak Lodge	<u>70</u>	69	<u>70</u>	69	0	<u>70</u>	69	0	<u>70</u>	69	0
R11	Crown Motel	<u>71</u>	70	<u>71</u>	70	0	<u>71</u>	70	0	<u>71</u>	70	0
R12	Falcon's Lodge	<u>72</u>	71	<u>72</u>	71	0	<u>72</u>	71	0	<u>72</u>	71	0
R13	Private Residence	<u>67</u>	66	<u>67</u>	66	0	<u>67</u>	66	0	<u>67</u>	66	0
R14	Private Residence	64	63	64	63	0	64	63	0	64	63	0
R15	North Lake Lodge	<u>71</u>	70	<u>71</u>	70	0	<u>71</u>	70	0	<u>71</u>	70	0
R16	Private Residence	<u>68</u>	67	<u>68</u>	67	0	<u>68</u>	67	0	<u>68</u>	67	0
R17	Private Residence/Office	<u>66</u>	65	<u>66</u>	65	0	<u>66</u>	65	0	<u>66</u>	65	0
R18	Private Residence	<u>71</u>	70	<u>71</u>	70	0	<u>71</u>	70	0	<u>71</u>	70	0
R19	Stevenson's Holiday Inn	<u>69</u>	68	<u>69</u>	68	0	<u>69</u>	68	0	<u>69</u>	68	0
R20	Ta-Tel Lodge	<u>68</u>	67	<u>68</u>	67	0	<u>68</u>	67	0	<u>68</u>	67	0
R21	North Shore Lodge	<u>70</u>	69	<u>70</u>	69	0	<u>70</u>	69	0	<u>70</u>	69	0
R22	Private Residence	<u>71</u>	70	<u>71</u>	70	0	<u>71</u>	70	0	<u>71</u>	70	0

Notes: **Bold** = exceeds TRPA's noise level standard of 55 dBA, CNEL.

Italics = exceeds Placer County noise level standard of 55 dBA, CNEL and an incremental increase in traffic noise directly attributed to the project is greater than 3 dB.

Underline = approaches or exceeds Caltrans/FHWA NAC criterion of 67 dBA, L_{eq}.

Source: J.C. Brennan and Associates, Inc. 2006; LSC Transportations Consultants, Inc. 2007.

Table 3.9-8. Summary of Future-Year (2028) Modeled Traffic Noise Levels and Comparison of Modeled Build Alternative Traffic Noise Levels to No-Build (Alternative 1) Conditions

Receiver #	Land Use	Summer Conditions Modeled 2028 Traffic Noise Levels Compared to 2028 No-Build Conditions (dBA)										
		Alternative 1		Alternative 2			Alternative 3			Alternative 4		
		L _{eq}	CNEL	L _{eq}	CNEL	ΔdB	L _{eq}	CNEL	ΔdB	L _{eq}	CNEL	ΔdB
R1	Sweetbriar Condominiums	<u>67</u>	66	<u>67</u>	66	0	<u>67</u>	66	0	<u>67</u>	66	0
R2	La Comunidad Unida/Little Bear Cottages	<u>72</u>	71	<u>72</u>	71	0	<u>72</u>	71	0	<u>72</u>	71	0
R3	Motel California	<u>68</u>	67	<u>68</u>	67	0	<u>68</u>	67	0	<u>68</u>	67	0
R4	Private Residence	<u>70</u>	69	<u>70</u>	69	0	<u>70</u>	69	0	<u>70</u>	69	0
R5	Caesar's Cottages	<u>73</u>	72	<u>73</u>	72	0	<u>73</u>	72	0	<u>73</u>	72	0
R6	Big 7 Motel	<u>73</u>	72	<u>73</u>	72	0	<u>73</u>	72	0	<u>73</u>	72	0
R7	Multifamily Residence	<u>68</u>	67	<u>68</u>	67	0	<u>68</u>	67	0	<u>68</u>	67	0
R8	Annie's Cottages	<u>73</u>	72	<u>73</u>	72	0	<u>73</u>	72	0	<u>73</u>	72	0
R9	Gold Crest Motel	<u>73</u>	72	<u>73</u>	72	0	<u>73</u>	72	0	<u>73</u>	72	0
R10	Snow Peak Lodge	<u>72</u>	71	<u>72</u>	71	0	<u>72</u>	71	0	<u>72</u>	71	0
R11	Crown Motel	<u>73</u>	72	<u>73</u>	72	0	<u>73</u>	72	0	<u>73</u>	72	0
R12	Falcon's Lodge	<u>74</u>	73	<u>74</u>	73	0	<u>74</u>	73	0	<u>74</u>	73	0
R13	Private Residence	<u>69</u>	68	<u>69</u>	68	0	<u>69</u>	68	0	<u>69</u>	68	0
R14	Private Residence	<u>66</u>	65	<u>66</u>	65	0	<u>66</u>	65	0	<u>66</u>	65	0
R15	North Lake Lodge	<u>73</u>	72	<u>73</u>	72	0	<u>73</u>	72	0	<u>73</u>	72	0
R16	Private Residence	<u>69</u>	68	<u>69</u>	68	0	<u>69</u>	68	0	<u>69</u>	68	0
R17	Private Residence/Office	<u>68</u>	67	<u>68</u>	67	0	<u>68</u>	67	0	<u>68</u>	67	0
R18	Private Residence	<u>73</u>	72	<u>73</u>	72	0	<u>73</u>	72	0	<u>73</u>	72	0
R19	Stevenson's Holiday Inn	<u>71</u>	70	<u>71</u>	70	0	<u>71</u>	70	0	<u>71</u>	70	0
R20	Ta-Tel Lodge	<u>70</u>	69	<u>70</u>	69	0	<u>70</u>	69	0	<u>70</u>	69	0
R21	North Shore Lodge	<u>72</u>	71	<u>72</u>	71	0	<u>72</u>	71	0	<u>72</u>	71	0
R22	Private Residence	<u>73</u>	72	<u>73</u>	72	0	<u>73</u>	72	0	<u>73</u>	72	0

Notes: **Bold** = exceeds TRPA's noise level standard of 55 dBA, CNEL.

Italics = exceeds Placer County noise level standard of 55 dBA, CNEL and an incremental increase in traffic noise directly attributed to the project is greater than 3 dB.

Underline = approaches or exceeds Caltrans/FHWA NAC criterion of 67 dBA, L_{eq}.

Source: J. C. Brennan and Associates, Inc. 2006; LSC Transportations Consultants, Inc. 2007.

Alternatives 2, 3, and 4

During the construction phases of the project, noise from construction activities would dominate the noise environment in the immediate area. Activities involved in construction would generate noise levels, as indicated in Table 3.9-9, ranging from 70 to 90 dB, Leq at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. Construction activities would be temporary in nature, typically occurring during normal working hours. However, it is anticipated that some nighttime construction may occur. Construction noise during nighttime activities or during use of unusually noisy equipment could result in annoyance or sleep disruption for nearby residences and other noise-sensitive land uses.

Table 3.9-9. Construction Equipment Noise

Equipment	Typical Noise Level (dBA) 50 ft from Source
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, derrick	88
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jackhammer	88
Loader	85
Paver	89
Pile driver (impact)	101
Pile driver (sonic)	96
Pneumatic tool	85
Pump	76
Rock drill	98
Roller/sheep's foot	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Truck	88
Source: Federal Transit Administration 1995.	

Construction noise is regulated by Caltrans standard specifications Section 7-1.01I, *Sound Control Requirements*. These requirements state that noise levels generated during construction shall comply with applicable local, state, and federal regulations and that all

equipment shall be fitted with adequate mufflers according to the manufacturer's specifications.

During construction, traffic noise generated by approaching traffic would be reduced due to a reduction in speed required by working road crews. Conversely, traffic noise levels of vehicles leaving the construction area would be slightly higher than normal due to acceleration. The net effect of the accelerating and decelerating traffic upon noise would not be appreciable. The most important project-generated noise source would be truck traffic associated with transport of heavy materials and equipment and construction equipment.

It is expected that the construction activities during nighttime periods could result in the greatest disturbances to nearby sensitive land uses. Implementation of Mitigation Measures NZ-1 through NZ-3 would help minimize the severity of this effect.

Impact NZ-2: Exposure of Noise Sensitive Land Uses to Traffic Noise in Excess of Standards

Alternative 1

Near-Term (2008) Traffic Noise Impacts

The traffic noise modeling results summarized in Table 3.9-7 indicates that predicted Alternative 1 future near-term (2008) traffic noise levels range between 64 and 72 dB L_{eq} . Twenty-one of the 22 receivers (95%) approach or exceeded the Protocol NAC of 67 dBA, L_{eq} . Only Receiver R14 did not approach or exceed the 67 dBA, L_{eq} Protocol NAC. Based on the traffic noise modeling results presented in Table 3.9-7, it is not anticipated that traffic noise under near-term Alternative 1 conditions would result in an increases in traffic noise levels in excess of 3 dB. No predicted increases in traffic noise are anticipated between existing and Alternative 1 conditions.

Future-Year (2028) Traffic Noise Impacts

The traffic noise modeling results presented in Table 3.9-8 indicates that the predicted Alternative 1 Future Year 2028 traffic noise levels ranged between 66 and 74 dBA, L_{eq} .

All of the 22 receivers (100%) approach or exceed the Protocol NAC of 67 dBA, L_{eq} . Based on the traffic noise modeling results presented in Table 3.9-8, it is not anticipated that traffic noise under near-term Alternative 1 conditions would result in increases in traffic noise levels in excess of 3 dB. Predicted increases in traffic noise between existing and Alternative 1 conditions are anticipated to be between 1 and 3 dB.

Alternatives 2, 3, and 4

Near-Term (2008) Traffic Noise Impacts

The traffic noise modeling results presented in Table 3.9-7 indicates that the predicted near-term (2008) traffic noise levels ranged between 64 dB and 73 dBA, L_{eq} . The reported noise levels for Alternatives 2, 3, and 4 do not change. The noise levels reported in Table 3.9-7 are in whole numbers, as modeling results are rounded to the nearest decibel before comparisons are made (California Department of Transportation 1998a). In actuality, the modeling for each of the alternatives revealed subtle differences in the predicted noise levels. However, they were generally less than 0.5 dB and were not significant. Table 3.9-7 indicates that 21 of the 22 receivers (95%) approach or exceed the Caltrans NAC of 67 dBA, L_{eq} . As indicated above, under the Protocol, traffic noise abatement must be considered when the predicted noise levels “approach or exceed” the NAC or when the predicted noise levels substantially exceed existing noise levels and it is reasonable and feasible to provide noise attenuation. Because predicted traffic noise levels summarized in Table 3.9-7 approach or exceed the NAC of 67 dBA, $L_{eq}(h)$, for Activity Category B land uses within the study area, traffic noise impacts are predicted to occur at Activity Category B land uses within the study area, and noise abatement must be considered. However, barriers and berms used as mitigation for traffic noise impacts would not be feasible or reasonable because driveway access points would prevent the construction of barriers, due to significant gaps in the barriers. The gap or opening in a sound wall would compromise the barrier effectiveness. In addition, due to the aesthetic effects of constructing barriers along the SR 28 corridor, TRPA is not likely to approve barrier construction. Table 3.9-7 indicates that Alternatives 2 through 4 would not result in any traffic noise increases relative to 2008 no-build conditions (Alternative 1).

Because the alternatives would not result in a 3 dB or greater increase in traffic noise, given the context and intensity of this noise increase, this effect is not considered adverse, and no mitigation is required.

Future-Year (2028) Traffic Noise Impacts

The traffic noise modeling results presented in Table 3.9-8 indicates that the predicted Future-Year (2028) traffic noise levels ranged between 66 dB and 74 dB L_{eq} . The reported noise levels for Alternatives 2, 3, and 4 do not change. The noise levels reported in Table 3.9-8 are in whole numbers. In actuality, the modeling for each of the alternatives revealed subtle differences in the predicted noise levels. However, they were generally less than 0.5 dB and were not significant. Table 3.9-8 indicates all of the 22 receivers (100%) approach or exceed the Protocol NAC of 67 dB L_{eq} . Consequently, based on the Protocol, traffic noise impacts are predicted to occur at Activity Category B land uses within the study area, and noise abatement must be considered. However, barriers and berms used as mitigation for traffic noise impacts would not be feasible or reasonable because driveway access points would prevent the construction of barriers, due to significant gaps in the barriers. Table 3.9-8 indicates that Alternatives 2 through 4 would not result in traffic noise increases, relative to 2028 no-build conditions (Alternative 1). Because the alternatives would not result in a 3 dB or greater increase in traffic noise, given the context and intensity of this noise increase, this effect is not considered adverse, and no mitigation is required.

3.9.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Any noise problem may be considered as being composed of three basic elements: the noise source, a transmission path, and a receiver. The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. Noise control techniques should be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local aesthetic standards and practical structural and economic limits.

Mitigation Measure NZ-1: Employ Noise-Reduction Construction Measures

The construction contractor will employ noise-reducing construction practices such that noise from construction does not exceed 55 dBA, L_{eq} at noise-sensitive uses during daytime hours. Measures that can be used to limit noise may include but are not limited to the following.

- Locating equipment as far a practical from noise sensitive uses.
- Using sound control devices such as mufflers on equipment.
- Turning off idling equipment.
- Using equipment that is quieter than standard equipment.
- Selecting construction access routes that affect the fewest number of people.
- Using noise-reducing enclosures around noise-generating equipment.
- Constructing barriers between noise sources and noise-sensitive land uses or taking advantage of existing barrier features (terrain, structures) to block sound transmission.
- Temporarily relocating residents during periods of high construction noise that cannot be effectively reduced by other means.

The construction contractor will prepare a detailed noise control plan based on the construction methods proposed. This plan will identify specific measures determined to be feasible by Placer County that will be taken to ensure compliance with the noise limits specified above. The noise control plan will be reviewed and approved by Placer County before any noise-generating construction activity begins.

Mitigation Measure NZ-2: Prohibit Nighttime Construction Activities

Consistent with TRPA's construction noise limitations, Placer County will ensure that construction activities are limited to the hours between 8:00 a.m. and 6:30 p.m. This stipulation will be made a part of the construction contract.

Mitigation Measure NZ-3: Disseminate Essential Information to Residences and Implement a Complaint/Response Tracking Program

The construction contractor will notify residences within 500 feet of the construction areas of the construction schedule in writing, prior to construction. The construction contractor will designate a noise disturbance coordinator who will be responsible for responding to complaints regarding construction noise. The coordinator will determine the cause of the complaint and will ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the noise disturbance coordinator will be conspicuously posted on construction site fences and will be included in the written notification of the construction schedule sent to nearby residents.

3.9.5 Compliance with Tahoe Regional Planning Agency Code

Based on a review of applicable TRPA noise standards, the proposed action would not be in compliance with TRPA code if either of the following occurs.

- Construction noise would occur outside the hours of 8:00 a.m. to 6:30 p.m.
- Traffic noise directly attributed to the project is would exceed 60 dBA, CNEL.

Construction Noise

Alternative 1

No construction activities would occur under Alternative 1. Consequently, Alternative 1 is considered to be in compliance with TRPA code.

Alternatives 2, 3, and 4

Table 3.9-9 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction activities that occur outside of the hours between 6:30 p.m. and 8:00 a.m. would not be in compliance with TRPA Code. Consequently, this effect is considered adverse. Implementation of Mitigation Measures NZ-1 through NZ-3 would reduce this impact. It should be noted

that noise ordinances in the TRPA Code do not apply to back-up alarms and other noises related to accident prevention and safety.

Traffic Noise Levels

Alternative 1

Near-Term (2008) Traffic Noise Impacts

Based upon the analysis, the predicted distance to the 60 dB CNEL contour is 250 feet from the edge of the pavement. This is consistent with the TRPA PAS criterion for SR 28 of 60 dBA, CNEL, at a distance of 300 feet from the edge of the roadway pavement. The proposed action will not permanently change existing noise levels and therefore will not reduce the ability to meet community noise equivalent levels specified in TRPA PASs and community plans.

Future-Year (2028) Traffic Noise Impacts

Based upon the analysis, the predicted distance to the 60 dB CNEL contour is 300 feet from the edge of the pavement. This is consistent with the TRPA PAS criterion for SR 28 of 60 dB CNEL, at a distance of 300 feet from the edge of the roadway pavement. The proposed action will not permanently change existing noise levels and therefore will not reduce the ability to meet community noise equivalent levels specified in TRPA PASs and community plans.

Alternatives 2, 3, and 4

Near-Term (2008) Traffic Noise Impacts

The results of traffic noise modeling for near-term conditions are summarized in Table 3.9-7. Table 3.9-7 indicates that traffic noise levels for Alternatives 2 through 4 will exceed TRPA's noise level standard (60 dBA, CNEL) for the SR 28 corridor (Table 3.9-6). However, the predicted distance to the 60 dBA, CNEL contour is 250 feet from the edge of the pavement, which is consistent with the TRPA Plan Area Statement criterion of 60 dBA, CNEL at a distance of 300 feet from the edge of the roadway pavement. Furthermore, Table 3.9-7 also indicates that Alternatives 2 through 4 would not result in

traffic noise increases, relative to 2008 no-build conditions (Alternative 1). Finally, the proposed action will not permanently change existing noise levels and therefore will not reduce the ability to meet community noise equivalent levels specified in TRPA PASs and community plans.

Future- Year (2028) Traffic Noise Impacts

The results of traffic noise modeling for future-year conditions are summarized in Table 3.9-8. Table 3.9-8 indicates that traffic noise levels for Alternatives 2 through 4 will exceed TRPA's noise level standard (60 dBA, CNEL) for the SR 28 corridor (Table 3.9-6). However, the predicted distance to the 60 dBA, CNEL contour is 250 feet from the edge of the pavement, which is consistent with the TRPA Plan Area Statement criterion of 60 dBA, CNEL at a distance of 300 feet from the edge of the roadway pavement. Furthermore, Table 3.9-8 also indicates that Alternatives 2 through 4 would not result in traffic noise increases, relative to 2028 no-build conditions (Alternative 1). Finally, the proposed action will not permanently change existing noise levels and therefore will not reduce the ability to meet community noise equivalent levels specified in TRPA PASs and community plans.

3.10 Recreation

3.10.1 Affected Environment

Kings Beach is one of the primary commercial and recreational centers in the Lake Tahoe Basin. SR 28 extends through the Kings Beach commercial area, which is generally defined as extending from the SR 267 intersection at the western boundary to the intersection of SR 28 and Chipmunk Street at the eastern boundary. Land uses are predominantly tourist/recreational and commercial. The Kings Beach State Recreation Area (SRA) is the only recreation resource in the proposed action boundary area.

The Kings Beach SRA is a 25-acre publicly owned public recreation area on the northern shore of Lake Tahoe. The Kings Beach SRA is comprised of land owned by three state entities; DPR, California Tahoe Conservancy (CTC) and the California Department of Boating and Waterways (Cal Boating). Together the parcels and facilities operate seamlessly to the user and/or visitor to the Kings Beach SRA (Rogers pers. comm.). The mission of all three state entities is to provide for public access and recreation. DPR owns the main entrance, parking area, and beach area immediately south of the parking area. CTC owns the plaza area, while Cal Boating owns the beach immediately south of the CTC land, the Coon Street Boat Launch and parking area (Lacey pers. comm.). The Kings Beach SRA is shown on Figure 3.10-1.

The NTPUD operates and maintains the Kings Beach SRA under operating and maintenance agreements with DPR, CTC, and Cal Boating. The NTPUD owns and manages the North Tahoe Conference Center.

Kings Beach SRA includes 700 feet of lakefront and is the largest public access sandy beach on the north shore of Lake Tahoe. The white sand beach has a south facing aspect that gradually deepens, making it one of the warmest swimming areas on the lake. (North Tahoe Public Utility District 2006.)

Kings Beach SRA is a day-use only area. The facilities are open daily from 6 a.m. to 10 p.m. Kings Beach SRA is popular for water sports, picnicking, and other recreational activities during the late spring, summer, and early fall months. Facilities include a pier, picnic area, restrooms, and parking lot with approximately 150 parking spaces.

The large central plaza area on the eastern end serves as a gathering place for special events and community functions. Recreation facilities in the plaza are grouped near the beach, where a lakefront promenade extends westward. The plaza facilities include restrooms, barbeque and picnic sites, a playground area, and a basketball court. A summer concessionaire offers jet-ski rentals, kayak rentals, and parasail rides. The interior area is a grassy meadow with split cedar fencing that buffers the central plaza/beach area from SR 28. This grassy area has been restored, revegetated, and acts as a filter for runoff to preserve the clarity of Lake Tahoe's water (California Tahoe Conservancy 2006).

The Coon Street Boat Launch is located at the southern end of Coon Street. The facility includes a boat launch ramp, restrooms, and a parking area with approximately 30 parking spaces. Fees are charged separately for boat launching and parking. The beach on the southeastern side of the boat launch is the only beach in the NTPUD that allows dogs.

In May of 2006, NTPUD installed automated parking gate systems at the main parking area and the Coon Street parking area.

There are no fees for use of the beach or other facilities (except for a boat launch fee), fees are only charged for parking. The NTPUD uses the parking fees for the annual maintenance of the recreation areas and facilities. Capital improvements for the Kings Beach SRA are also funded in this manner.

The North Tahoe Conference Center is located on the western edge and immediately adjacent to the parking area. The conference center provides operating information regarding the Kings Beach SRA.

The Kings Beach SRA is accessed from the main entrance to the parking lot located at the intersection of SR 28 and Bear Street and from the northeast corner of the plaza area.

Lands within the Kings Beach SRA were not purchased or improved with funds under Section 6(f) of the Land and Water Conservation Fund Act, the Federal Aid in Fish Restoration Act (Dingell-Johnson Act), the Federal Aid in Wildlife Act (Pittman-Robertson Act), or similar laws nor are the lands otherwise encumbered with any federal interest.

3.10.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

3.10.2.1 Federal

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

Federal protection of recreation resources is provided under Section 4(f) of the U.S. Department of Transportation Act of 1966. Section 4(f), codified in federal law at 49 U.S.C. 303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that

[t]he Secretary [of Transportation] may approve a transportation program or project... requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge or site) only if –

- (1) there is no prudent and feasible alternative to using that land; and
- (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Departments of Agriculture and relevant state and local officials, in developing transportation projects and programs that use land protected by Section 4(f).

As defined in 23 *CFR* 771.135(p), the “use” of a protected Section 4(f) resource occurs when any of the following conditions are met.

- Land is permanently incorporated into a transportation facility through partial or full acquisition (i.e., “direct use”).
- There is a temporary occupancy of land that is adverse in terms of the preservationist purposes of Section 4(f) (i.e., “temporary use”).
- There is no permanent incorporation of land, but the proximity of a transportation facility results in impacts so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (i.e., “constructive use”).

On August 10, 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was enacted as Public Law 109-59. Section 6009 of SAFETEA-LU amended the existing Section 4(f) legislation at 23 *U.S.C. Section 138* and 49 *U.S.C. Section 303* to simplify the processing and approval of a program or project that will only have a *de minimis* impact on the resource (i.e., there are no adverse effects, or only very minor adverse effects from the project on the resources eligible for protection under Section 4(f)).

The FHWA has determined that the Kings Beach SRA qualifies as a recreation resource eligible for protection under Section 4(f).

On December 13, 2005, FHWA and Federal Transit Administration (FTA) issued a joint memorandum providing guidance for FHWA and FTA field offices to use in implementing Section 6009 of SAFETEA-LU.

According to the 2005 FHWA/FTA joint guidance on determining *de minimis* impacts on Section 4(f) resources, the following applies when considering a *de minimis* impact finding:

- The *de minimis* impact finding is based on the degree or level of impact including any avoidance, minimization, and mitigation or enhancement measures that are included in the project to address the Section 4(f) use. The expected positive effects of any measures included in a project to mitigate the adverse effects of a Section 4(f) resource must be taken into account when determining whether the impact to the Section 4(f) resource is *de minimis*.
- The transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f);
- The official(s) with jurisdiction over the property are informed of FHWA's intent to make the *de minimis* impact finding based on their written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and
- The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) resource (Federal Highway Administration and Federal Transit Administration 2005).

After it is determined a *de minimis* impact finding can be made, the development and analysis of alternatives that avoid use and measures to minimize harm required under a full Section 4(f) evaluation process are not required, and the Section 4(f) process is complete. The 2005 FHWA/FTA joint guidance on determining *de minimis* impacts on Section 4(f) resources can be found on FHWA's website at:
<<http://www.fhwa.dot.gov/hep/qasdeminimus.htm#ftn5>>.

3.10.2.2 State

State Quimby Act

Passed in 1975, the Quimby Act requires developers to help mitigate the impacts of property improvements. Cities and counties have been authorized since the passage of the Quimby Act (*California Government Code §66477*) to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements. The act gives authority for passage of land dedication ordinances only to cities and counties. The formula for dedication of land is the following:

- minimum acreage dedication = average number of persons/unit divided by 1,000/park acreage standard.

3.10.2.3 Local

The 1987 Regional Plan for the Lake Tahoe Basin describes the needs and goals of the region and provides statements of policy to guide decision-making as it affects the region's resources and remaining capacities. The Regional Plan with all of its elements, as implemented through agency ordinances and rules and regulations, provides for the achievement and maintenance of the adopted environmental threshold carrying capacities (thresholds) while providing opportunities for orderly growth and development. The Goals and Policies contained within the Regional Plan establish TRPA thresholds applicable for areas within TRPA's jurisdiction, and include the following policies:

- **R1**—It shall be the policy of the TRPA governing body in development of the regional plan to preserve and enhance the high-quality recreational experience, including preservation of high-quality undeveloped shore zone and other natural areas. In developing the regional plan, the staff and governing body shall consider provisions for additional access, where lawful and feasible, to the shore zone and high-quality undeveloped areas for low-density recreational uses.

- **R2**—It shall be the policy of the TRPA governing body in development of the regional plan to establish and ensure that a fair share of the total basin capacity for outdoor recreation is available to the general public.

3.10.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

Impacts on recreation resources were evaluated in accordance with FHWA regulations for Section 4(f) compliance codified at *23 CFR 771.135*. Additional guidance has been obtained from the *Section 4(f) Policy Paper* (Federal Highway Administration 2005) and the *Guidance for Determining De Minimis Impacts to Section 4(f) Resources* (Federal Highway Administration and Federal Transit Administration 2005).

Impact REC-1: Increase the Use of Recreational Facilities That Would Cause Physical Deterioration of the Facility

Alternative 1

Under Alternative 1, it is assumed that the existing conditions would persist and that the proposed action would not be implemented. No changes would occur to the Kings Beach SRA under this alternative. This is not considered an adverse effect, and no mitigation would be required.

Alternatives 2, 3, and 4

Through joint planning efforts of Placer County, TRPA, and Caltrans, many of the action components are proposed to accommodate the various public interests, including construction of bicycle lanes and pedestrian sidewalks. Implementation of Alternatives 2–4 would improve access and safety for pedestrians and bicyclists to the Kings Beach SRA and would not result in an increase in population that would cause physical deterioration of the recreation facilities. Furthermore, no basins, drainages, or other features would adversely affect public land and recreation opportunities as a result of the proposed action. This is not considered an adverse effect, and no mitigation would be required.

Impact REC-2: Section 4(f) Use of Land (De Minimis Impact)

Implementation of the Alternatives 2, 3, and 4 would all require a Section 4(f) use of land from the Kings Beach SRA. Table 3.10-1 shows the amount of land required by the proposed build alternatives for the SR 28 improvements from the 25-acre recreation area.

Table 3.10-1. Section 4(f) Use of Land from Kings Beach SRA by Alternative

	Alternative			
	1	2	3	4
Kings Beach SRA	0.0 (0.0)	2483 (0.06)	1043 (0.02)	2483 (0.06)
Note: Square feet (acres).				

The land required from the Kings Beach SRA for the proposed action is located in the main entrance area of the Kings Beach SRA and on the northeast corner of the plaza area adjacent to the intersection of SR 28 and Coon Street. The use at the main entrance area is required for the improvements to the intersection at Bear Street, Brook Street, and SR 28, and on the northeast corner for improvements to the intersection at Coon Street and SR 28. In addition as part of the water quality improvements included in the proposed action, a vault and media filter would be installed beneath the parking lot west of the main entrance area. The exact dimensions of the vault and media filter will be determined during final design, however the area of construction disturbance would be minimized as much as possible.

The two portions of land required for the improvements to SR 28, and the parking area affected by the vault and media filter, are not located in the area used for recreation, as shown on Figures 3.10-2 through 3.10-4. These lands are currently used for pedestrian and vehicle access to the Kings Beach SRA and parking. The parking lot and grassy areas separate the beach and plaza areas from the main entrance and SR 28. The activities, features, and attributes that qualify the Kings Beach SRA for protection under Section 4(f) are integral to the central plaza, beach, and shoreline areas. These areas would not be adversely affected by the minor use of land immediately adjacent to SR 28

or the temporary construction effects as a result of installation of the water quality improvements in the parking lot.

Use of this land for the improvements to SR 28 will not impair the use of the remaining Kings Beach SRA, in whole or in part, for its intended purpose of recreation. Rather use of these areas for the proposed improvements would improve access and safety for pedestrians and bicyclists to the Kings Beach SRA in both locations. The installation of the vault and media filter would result in long-term beneficial effects (i.e., water quality and aesthetic) by collecting and treating the runoff that would otherwise flow directly through the action area and into Lake Tahoe without implementation of the proposed action.

The improvements would include the construction of sidewalks for pedestrian mobility, construction of bicycle lanes, and safety and curb returns to design standards for the intersections. These improvements would result in beneficial impacts on pedestrians and bicyclists both accessing the Kings Beach SRA and moving through the KBCC. Under all alternatives, the sidewalks and bike lanes would be installed. This would not only increase safety but would increase pedestrian and bicycle mobility and would enable greater numbers of people to safely walk and bike throughout the Kings Beach area. In addition, the land required from the Kings Beach SRA for the proposed action (Figures 3.10-2 through 3.10-4) would facilitate and enhance motorists entering and exiting the SRA due to the widening and reconfiguration of the Kings Beach SRA entrance at Bear Street. The reconfiguration at this intersection would result in a wider approach, which would reduce the angle motorists would have to turn into and out of the Kings Beach SRA, thereby improving their ability to access the Kings Beach SRA. The main entrance to the parking area will be reconstructed to provide a pedestrian crosswalk across the entrance and the proper geometry for the type of intersection to be constructed.

The vault and media filter would be operated and maintained by Placer County at a service level acceptable to the NTPUD and the DPR. Placer County may contract with the NTPUD to maintain the facilities.

Temporary construction effects associated with the construction of the vault and media filter would be minimized. It is anticipated that installation of the vault and media filter would occur within a 1-month period, with the actual installation and “plumbing” occurring over a 10- to 15-day period. Access to the Kings Beach SRA and the main parking area would be maintained to minimize potential impacts on visitors to the beach and plaza areas. The parking lot area disturbed as a result of installation of the water treatment facilities would be restored to the original condition (or better) and no parking spaces would be permanently affected or lost.

Consultation and coordination with the officials with jurisdiction over the Kings Beach SRA is ongoing. Coordination has occurred and written concurrence that the proposed action will not adversely affect the activities, features, or attributes that qualify the Kings Beach SRA for protection under Section 4(f) has been received. These letters are included in Appendix O.

The public has had an opportunity to review and comment on the draft environmental assessment document and the effects of the proposed action on the activities, features, and attributes that qualify the Kings Beach SRA for protection under Section 4(f).

Caltrans has determined that the proposed action will have a *de minimis* impact on the Kings Beach SRA. Implementation of Mitigation Measure REC-1 presented below, would help to minimize effects on the Kings Beach SRA.

3.10.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Implementation of the improvements to SR 28 will have a beneficial effect by improving access and safety for bicyclists and pedestrians to the Kings Beach SRA by providing bike lanes, crossing areas, and sidewalks. Widening and reconfiguration of the main entrance will improve access to the Kings Beach SRA, and installation of the water treatment facilities will improve water quality and minimize runoff into Lake Tahoe. It is also anticipated that the improvements to SR 28 will enhance the experience of visitors as a result of the aesthetic streetscape improvements, which will include new streetlights,

benches, transit facilities, planters, bicycle racks, trash receptacles, and additional landscaping.

However, to further minimize the severity of potential effects on the Kings Beach SRA, the following mitigation measure is recommended.

Mitigation Measure REC-1: Implement Measures to Minimize Effects to Kings Beach SRA

Placer County will implement measures to minimize impacts on the Kings Beach SRA. Measures include, but are not limited to the following.

- Placer County and Caltrans will work with the agencies having jurisdiction over the Kings Beach SRA to provide advanced notice of construction activities.
- Placer County will ensure that the area of the construction footprint is kept to a minimum and that parking lot access and parking, to the extent feasible, will be maintained. In addition, Placer County will restore the construction area to its original condition (or better) and will repave and restripe the affected construction area to maintain the most efficient use of the parking area.
- The automatic pay gate at the main entrance will be maintained in place as long as feasible and relocation/reinstallation of the gate will be coordinated with the NTPUD.
- Any signage removed, will be replaced.
- Timely information will be provided relating to any potential traffic delays, and access will be maintained to the greatest extent feasible. Construction activities with high noise levels will be limited to daytime hours. Measures will be taken to reduce, minimize, and compensate for impacts on vegetation and the existing terrain and within the Kings Beach SRA. Removal and disturbance of vegetation will be limited as feasible. Facilities will be designed to blend in with the existing terrain. Disturbed areas will be

revegetated upon completion of construction. During construction, measures may include watering of disturbed areas and prompt covering and removal of dirt. Dust generation will be minimized by inclusion in the construction contract specification to reduce this irritant.

3.10.5 Section 4(f) *De Minimis* Impact Finding

In consideration of the above, Caltrans has determined that implementation of the proposed action will have a *de minimis* impact on the Kings Beach SRA; therefore, further development and analyses of avoidance alternatives and alternatives to minimize harm are not required and the requirements of Section 4(f) of the Department of Transportation Act of 1966, 23 U.S.C. Section 138 (as amended) and 49 U.S.C. Section 303 (as amended) are considered satisfied.

3.10.6 Compliance with Tahoe Regional Planning Agency Code

The proposed action would not affect the shore zone associated with Kings Beach SRA, and would improve public access. In addition, no TRPA BMPs apply to recreation. The proposed action would enhance the recreation facility by including a bicycle lane and sidewalks, which would improve safety and access for bicyclists and pedestrians to Kings Beach SRA. The proposed action would not reduce recreation capacity and opportunities in the Lake Tahoe Basin. Therefore, the proposed action is consistent with the recreation thresholds R1 and R2, as previously mentioned.

3.11 Public Services and Utilities

3.11.1 Affected Environment

3.11.1.1 Utilities

Sierra Pacific Power Company provides electricity in the action area. Southwest Gas provides natural gas services to residents. AT&T provides telephone service, and NTPUD provides sewer, water, and recreation services to the communities of the north shore of Lake Tahoe, including the action area. Solid waste collection and disposal in the action area is provided by Tahoe Truckee Sierra Disposal. Recyclable materials are diverted at the Eastern Regional Landfill, and remaining solid waste is transferred to the Lockwood Landfill near Reno, Nevada.

3.11.1.2 Public Services

SR 28 is used as a primary route by law enforcement, fire protection, and emergency service providers to reach calls in the action area.

The Placer County Sheriff's Department provides law enforcement in the action area. The Placer County Sheriff's Kings Beach Service Center is located at 8645 North Lake Boulevard, which is alongside the project site. The Kings Beach Service Center is managed by one full-time employee and staffed primarily with community volunteers. California Highway Patrol also patrols the area and has an office and dispatch center approximately 13 miles away in Truckee.

The North Tahoe Fire Protection District (NTFPD) provides fire protection and emergency ambulance services for the action area. NTFPD provides emergency response through five stations and 50 employees and covers approximately 31 square miles from east of Donner Summit to (and including) the communities of western Nevada.

Headquarters for NTFPD are in Tahoe City, with the station closest to the action area located off the intersection of SR 267 and SR 28, less than one block north of the eastern limits of the action area. Although NTFPD has automated aid agreements with bordering

districts, NTFPD is capable of responding to wildland fires, structural fires, backcountry/technical rescue, swift water rescue, and hazardous materials mitigation. Additional support services for fire protection on wildland and other public lands are provided by the California Department of Forestry and/or U.S. Forest Service (USFS) Lake Tahoe Basin Management Unit (LTBMU).

Medical emergency services are provided by NTFPD and patients may be treated by emergency medical technicians (EMTs) or taken by ambulance to Tahoe Forest Hospital in Truckee or the Incline Village Health Center (Dillon pers. comm.).

Primary medical centers for the Kings Beach area are Incline Village Community Hospital, Tahoe Forest Hospital, and Barton Memorial Hospital.

Incline Village Community Hospital is the smallest hospital serving the action area. It is licensed for four acute beds and has four cubicles in the emergency department. This hospital also functions as a critical access hospital. Tahoe Forest Hospital is located in Truckee, California, and is licensed for 35 acute beds, 25 medical/surgical beds, six beds in the intensive care unit/cardiac care unit, six maternity beds, and 37 beds for nursing care. Its emergency department contains 15 cubicles and one trauma room. Tahoe Forest Hospital also provides home health and hospice services. Neither of these facilities provides ambulances for emergencies.

Barton Memorial Hospital is located in South Lake Tahoe. This facility is licensed for 81 acute care beds and 48 beds for patients requiring skilled nursing or long-term care. The emergency department has nine cubicles and one trauma room. In addition to these facilities, Barton Memorial Hospital offers urgent care and family practice facilities for patients with and without appointments.

3.11.1.3 Educational Facilities

The Tahoe Truckee Unified School District operates schools in the vicinity of the action area. The Kings Beach Elementary School is located in the community of Kings Beach

on Steelhead Avenue. North Tahoe Middle School and North Lake Tahoe High School are located along Polaris Drive in Dollar Point.

3.11.1.4 Road Maintenance/Snow Removal

Caltrans handles road maintenance and snow removal services for all state highways in the action area from facilities located in Tahoe City. Maintenance and snow removal for sidewalks built along the highway and county ROW for this project will be the responsibility of adjacent property owners through formation of a Property Based Improvement District.

3.11.1.5 Stormwater Drainage Facilities

Storm drainage facilities are the responsibility of Caltrans (within the ROW of SR 28) and Placer County (outside the ROW). As discussed in the project description, the culverts underneath SR 28 at the Griff Creek crossing do not currently meet applicable Caltrans and Placer County design standards because they are too small to convey the required design flows. It should be noted that the proposed action's purpose and need will not address the issue of improperly sized culverts at the Griff Creek crossing. While overtopping and flooding currently occur sporadically at this location, the proposed action will not change or worsen this condition. However, all culverts, crossings, and drainage facilities affected by the proposed action will be upgraded as part of the proposed action, which will serve to improve flows at these locations and would help to improve runoff and water quality in the action area.

3.11.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

TRPA has standards for stormwater quality. Those are discussed in *Section 3.13, Water Quality*.

3.11.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

Impact UT-1: Impacts on Utilities

Alternative 1

Under Alternative 1, the proposed improvements would not be constructed. Therefore, there would be no impacts on utilities under this alternative.

Alternatives 2, 3, and 4

No impacts on utilities are anticipated as a result of the implementation of this action.

Impact UT-2: Impacts on Law Enforcement, Fire Protection, and Emergency Medical Services

Alternative 1

Under Alternative 1, the proposed improvements would not be constructed. Therefore, there would be no impacts on law enforcement, fire protection, or emergency medical services under this alternative.

Alternatives 2, 3, and 4

Travel on SR 28 could be temporarily disrupted during project construction, including short-term closures and one-lane traffic controls on SR 28 between SR 267 and Chipmunk Street. The *Manual on Uniform Traffic Control Devices 2003 California Supplement* (Part 6, Temporary Traffic Control) adopted by Caltrans from the FHWA document of the same name establishes basic requirements for safely controlling traffic while working in state highways. Roadway closures and traffic controls could periodically affect response times for law enforcement and emergency service providers during construction periods, although emergency vehicle access would be maintained for public safety. Consequently, the build alternatives would have an adverse effect on law enforcement, fire protection, and emergency medical services. Implementation of Mitigation Measure UT-1 would minimize this effect.

Impact UT-3: Impacts on Stormwater Drainage Facilities

Alternative 1

Under Alternative 1, the proposed improvements would not be constructed. Therefore, there would be no impacts on stormwater drainage facilities under this alternative.

Alternatives 2, 3, and 4

Most development in the community of Kings Beach occurred before drainage issues were commonly considered from an areawide perspective. As a result, the stormwater conveyance system is not sized to accommodate flows generated up-gradient and does not meet current standards. Recent upgrades north of SR 28 have increased drainage network capacity and improved sediment control up-gradient from the project site.

However, the restricted capacity of culverts underneath the roadway limits the extent to which up-gradient waters can be conveyed through the ROW. Consequently, the build alternatives would have an adverse effect on stormwater drainage facilities.

Implementation of Mitigation Measure UT-2 would minimize this effect and improve stormwater drainage facilities.

3.11.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Mitigation Measure UT-1: Implement Measures to Reduce Potential Impacts on Law Enforcement, Fire Protection, and Emergency Medical Services

Placer County will ensure that its Contractor implements the following measure to reduce potential impacts on law enforcement, fire protection, and emergency medical services during project construction.

- A TMP will be prepared in accordance with the *Manual on Uniform Traffic Control Devices*, California Supplement 2003, Part 6 Temporary Traffic Control (or current version) (American Association of State Highway and Transportation Officials 2003) and Caltrans draft *Guidelines for Projects Located on the California State Highways in the Lake Tahoe Basin* (California Department of Transportation n.d.) during the final stage of project design to ensure local traffic is accommodated during construction and that access to

businesses and residences is maintained. Among other things, the TMP will provide the following:

- reduce, to the extent feasible, the number of vehicles (construction and other) on the roadways adjacent to the proposed action;
 - reduce, to the extent feasible, the interaction between construction equipment and other vehicles;
 - promote public safety through actions aimed at driver and road safety;
 - ensure safety for bicyclists and pedestrians throughout the action area; and
 - ensure adequate emergency access for police, fire, ambulance, and other emergency service vehicles.
- The provisions of the TMP will be incorporated into the project bid documents.
 - In addition, the following measures will be incorporated into the TMP prepared for the proposed action.
 - Notify law enforcement, fire protection, and emergency medical services at least 1 week in advance of detours and roadway or lane closures so that alternative routes or response actions can be taken. Notifications will specify the location and duration of closures, allowing providers to advise dispatchers and station personnel about alternative routes. Notification and providing continued access on SR 28 would ensure that response times for emergency service providers are not adversely affected during construction periods.
 - Allow emergency vehicles through any roadway segments temporarily closed for construction purposes
 - Placer County will undertake Underground Service Alert (USA) requirements to ensure that no underground utilities are disturbed. These requirements

include outlining the digging location in a manner sufficient to enable underground facility members to determine the area of digging to be field marked and calling USA 2 days prior to digging.

Mitigation Measure UT-2: Develop a Comprehensive Stormwater Drainage Conveyance Plan

Prior to completion of project design, Caltrans and Placer County will, in cooperation with TRPA, develop a comprehensive stormwater drainage conveyance plan for the proposed action that will provide sufficient conveyance capacity beneath the roadway to accommodate design flows. The design flows will be determined by agreement of the three agencies. This plan will be implemented in conjunction with construction of the project and will be operative upon project completion. The drainage improvements in the proposed action are those within the action area as shown on Figure 3.13-2. They do not include planned water quality improvements in the upgradient WIP area. The WIP improvements will be made as funding becomes available and will likely be implemented in phases as separate projects following and possibly during construction of the proposed action, with priority given to areas of the project watershed having the poorest drainage conditions. At a minimum, drainage upgrades will be made within the action area as part of the proposed action (see Figure 3.13-2).

The drainage conveyance plan will include the following components (within the proposed action area):

- source control and reduction of the quantity of runoff reaching stormwater conveyances;
- provision of stormwater collection facilities along SR 28, along side streets (if necessary), and in parking areas (if necessary);
- sizing of conveyance facilities (particularly those extending under SR 28) to accommodate agreed-upon design flows; and

- provisions for continued operations and maintenance of the conveyance facilities.

3.11.5 Compliance with Tahoe Regional Planning Agency Code

TRPA does not have compliance codes applicable to public services or utilities.

3.12 Geology and Soils

This section describes the environmental setting for geology, seismicity, and soils and the impacts on geology, seismicity, and soils that would occur as a result of the proposed action. Much of the information herein is derived from the Kings Beach Commercial Core Improvement Project Administrative Draft EIR/EIS authored by Mactec (2006b).

3.12.1 Affected Environment

3.12.1.1 Geology and Topography

This section addresses the regional and action area geology and topography.

Regional Geology and Topography

The action area is located in the Sierra Nevada geomorphic province. The Sierra Nevada is a strongly asymmetric mountain range with a long gentle western slope and a high and steep eastern escarpment. It averages 50 to 80 miles wide and runs through eastern California for more than 400 miles—from the Mojave Desert on the south to the Cascade Range and the Modoc Plateau on the north (Bateman and Wahrhaftig 1966).

The Sierra Nevada is a huge block of the earth's crust that has broken free along the Sierra Nevada fault system and been tilted westward. It is overlapped on the west by sedimentary rocks of the Great Valley geomorphic province and on the north by volcanic sheets extending south from the Cascade Range. A blanket of volcanic material caps large areas in the northern part of the range (Bateman and Wahrhaftig 1966).

Most of the southern half of the Sierra Nevada and the eastern part of the northern half are composed of plutonic (chiefly granitic) rocks of Mesozoic age. These rocks constitute the Sierra Nevada batholith. In the northern half of the range, the batholith is flanked on the west by the western metamorphic belt, a terrane of strongly deformed, but weakly metamorphosed sedimentary and volcanic rocks of Paleozoic and Mesozoic age.

The batholith extends eastward to the eastern edge of the range (Bateman and Wahrhaftig 1966).

Geology and Topography of the Action Area

Kings Beach is located on the north shore of Lake Tahoe, which is situated in an intermountain basin between the Sierra Nevada and the Carson Range. Lake Tahoe formed in a graben, or down dropped block, bound on the east and west by a series of discontinuous, generally east and west dipping normal faults (dePolo et al. 1997; Gardner et al. 2000). The northern end of the Basin is commonly accepted to have been closed by a combination of faulting and repeated episodes of volcanic activity and glacial advances during the late Pliocene and early Pleistocene, blocking the basin outlet and allowing Lake Tahoe to form (Saucedo 2005).

The southern Basin is primarily underlain by Mesozoic granitic rocks that are part of the Sierra Nevada batholith. The northern Basin is primarily underlain by Cenozoic volcanic rocks. Quaternary glacial deposits are widespread on the southern and western edges of the Basin, while much of the northern edge is covered by Miocene and early Pleistocene volcanic and intrusive rocks (Saucedo 2005).

Miocene andesite and dacite flow outcrops are present on the shoreline immediately west of the action area. Surrounding Kings Beach are other areas of Miocene andesite and dacite flow outcrops; andesite and basaltic andesite flows; and undivided andesitic and dacitic lahars, flows, breccia, and volcanoclastic sediments (Saucedo 2005).

The action area is primarily on beach and lake deposits of Holocene age. The Holocene beach deposits are composed of moderately sorted, fine- to very coarse-grained to gravelly arkosic sand derived from the decomposition of granite. The Holocene lake deposits are composed of thin-bedded sandy silt and clay (Saucedo 2005).

3.12.1.2 Seismicity

Seismic hazards are earthquake fault ground rupture and ground shaking (primary hazards) and liquefaction and earthquake-induced slope failure (secondary hazards). Ground shaking is the most significant seismic hazards in the action area.

The Basin is located in a seismically active region of the United States. Earthquakes have occurred in the vicinity of the action area in the past and can be expected to occur again in the near future. Scientists have discovered that the Basin has many active faults and are currently mapping them. These scientists have uncovered evidence that Basin faults have had prehistoric earthquakes of a magnitude of 7 within the past 10,000 years. However, from extensive study of other Great Basin fault zones, scientists believe that large quakes are “rare events” in the Basin, meaning quakes of magnitude 6.5 or greater occur on individual faults about every 3,000 to 4,000 years (Segale and Cobourn 2005).

Farther east, the Reno–Carson City urban corridor is located in a very seismically active region. Earthquakes occurring in the Reno–Carson City urban corridor have the potential to trigger secondary hazards in the action area, if the earthquakes are strong enough in magnitude and close enough to the action area. The probability of at least one magnitude ≥ 6 event in the Reno–Carson City urban corridor is estimated to be between 34% and 98%, the probability of a magnitude ≥ 6.6 event between 9% and 64%, and the probability of a magnitude ≥ 7 event between 4% and 50% (dePolo et al. 1997).

In brief, the action area could be affected by earthquakes that are nearby but outside of its boundaries, further raising the total estimated hazard. Overall, the probabilities of potentially damaging earthquakes within the region (including the action area) are relatively high and are commensurate with many parts of California. Thus, the earthquake hazard and potential in the Reno–Carson City urban corridor and the action area should be considered high (dePolo et al. 1997).

Surface Rupture and Faulting

The purpose of the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) is to regulate development near-active faults to mitigate the hazard of surface rupture. Faults in an Alquist-Priolo Earthquake Fault Zone are typically active faults. As defined under the Alquist-Priolo Act, an active fault is one that has had surface displacement within Holocene time (about the last 11,000 years). An early Quaternary fault (formerly known as a potentially active fault) is one that has had surface displacement during Quaternary time (last 1.6 million years). A pre-Quaternary fault is one that has had surface displacement before the Quaternary period.

There is only one recognized active fault within a 20-mile radius of the action area—the North Tahoe–Incline Village fault zone (Jennings 1994; Saucedo 2005)—but this fault zone is not in an Alquist-Priolo Earthquake Fault Zone (Hart and Bryant 1997). Several early Quaternary faults are located within a 20-mile radius of the action area, including the West Tahoe–Dollar Point fault zone. These faults or fault zones are not located in Alquist-Priolo Earthquake Fault Zones (Hart and Bryant 1997). Several pre-Quaternary faults are also present in an approximately 20-mile radius of the action area, including the Agate Bay fault and its associated fault complex. None of these faults or fault zones is in Alquist-Priolo Earthquake Fault Zones (Hart and Bryant 1997). Of all the faults described above, the North Tahoe fault is closest to the action area, located within a few miles of it.

Furthermore, buried thrust faults and inferred faults are located near the action area. These faults are not officially recognized as of yet by Caltrans, the State, or the Uniform Building Code (UBC), but they are potential sources of seismic activity (dePolo et al. 1997). More Quaternary faults are suspected to exist, some within ranges and others buried by recent alluvium within basins. Furthermore, the estimated slip rates generally only consider faults with normal slip, although suspicious lineaments and a predominance of strike-slip focal mechanisms from local earthquakes indicate unrecognized strike-slip faulting (Martinelli 1989). Thus, it is suggested that future research will tend to increase

these rates and, consequently, increase the geologic probability estimates of having an earthquake in the region. Accordingly, the seismic hazards for the action area are affected by both the recognized faults and these buried thrust faults and inferred faults. The buried thrust faults and inferred thrust faults are not listed in Alquist-Priolo Earthquake Fault Zones because they do not have surface ruptures and are not officially recognized.

Based on existing published data on officially recognized faults, the risk of surface rupture and faulting in the action area is apparently low because none of the active faults described above directly occur in the vicinity of the action area. However, this scenario is likely to change in the near future as other faults are discovered and mapped accordingly.

Ground-Shaking Hazard

The action area is located in UBC Seismic Hazard Zone 3. The Zone 3 designation indicates earthquakes in the region have the potential to make standing difficult and to cause stucco and some masonry walls to fall. Structures must be designed to meet the regulations and standards associated with Zone 3 hazards. As described above, the action area is located in a region of California characterized by historical seismic activity. However, the UBC recognizes no active seismic source in the action area vicinity (International Conference of Building Officials 1997).

As described above, the risk of surface rupture in the action area is generally low because of its distance from active faults. However, earthquake-induced ground shaking poses a slightly more significant hazard. The measurement of the energy released at the point of origin, or epicenter, of an earthquake is referred to as the magnitude, which is generally expressed in the Richter Magnitude Scale or as moment magnitude. The scale used in the Richter Magnitude Scale is logarithmic so that each successively higher Richter magnitude reflects an increase in the energy of an earthquake of about 31.5 times. Moment magnitude is the estimation of an earthquake magnitude by using seismic

moment, which is a measure of an earthquake size utilizing rock rigidity, amount of slip, and area of rupture.

The greater the energy released from the fault rupture, the higher the magnitude of the earthquake. Earthquake energy is most intense at the fault epicenter; the farther an area from an earthquake epicenter, the less likely that ground shaking will occur there.

Geologic and soil units comprising unconsolidated, clay-free sands and silts can reach unstable conditions during ground shaking, which can result in extensive damage to structures built on them (see *Liquefaction and Related Hazards* below).

Ground shaking is described by two methods: ground acceleration as a fraction of the acceleration of gravity (g) or the Modified Mercalli scale, which is a more descriptive method involving 12 levels of intensity denoted by Roman numerals. Modified Mercalli intensities range from I (shaking that is not felt) to XII (total damage).

The intensity of ground shaking that would occur in the action area as a result of an earthquake is partly related to the size of the earthquake, its distance from the action area, and the response of the geologic materials within the action area. As a rule, the earthquake magnitude and the closer the fault rupture to the site, the greater the intensity of ground shaking. When various earthquake scenarios are considered, ground-shaking intensities will reflect both the effects of strong ground accelerations and the consequences of ground failure.

Estimates of Earthquake Shaking

The action area is located in a region of California characterized by a moderate ground-shaking hazard. Based on a probabilistic seismic hazard map that depicts the peak horizontal ground acceleration values exceeded at a 10% probability in 50 years (California Geological Survey 2006; Cao et al. 2003), the probabilistic peak horizontal ground acceleration values in the action area range from 0.3 to 0.4g, where 1 g equals the force of gravity, thus indicating that the ground-shaking hazard in the action area is moderate. However, probabilistic peak horizontal ground acceleration values are

typically described for firm rocks. As such, ground-shaking hazard is more likely to be higher in the action area because much of the soils are softer alluvium. Farther to the east, the ground-shaking hazard increases even more, coinciding with the increase in abundance of associated faults and fault complexes (California Geological Survey 2006; Cao et al. 2003).

Liquefaction and Related Hazards

Liquefaction is a phenomenon in which the strength and stiffness of unconsolidated sediments are reduced by earthquake shaking or other rapid loading. Poorly consolidated, water-saturated fine sands and silts having low plasticity and located within 50 feet of the ground surface are typically considered to be the most susceptible to liquefaction. Soils and sediments that are not water saturated and that consist of coarser or finer materials are generally less susceptible to liquefaction (California Division of Mines and Geology 1997). Based on the sedimentological characteristics of the soils and the nonsaturated nature of the soils, liquefaction hazard is expected to be low for the action area.

Two potential ground failure types associated with liquefaction are lateral spreading and differential settlement (Association of Bay Area Governments 2001). Lateral spreading involves a layer of ground at the surface being carried on an underlying layer of liquefied material over a gently sloping surface toward a river channel or other open face. Lateral spreading is not common in the region and does not pose a significant hazard.

Differential settlement (also called ground settlement, and in extreme cases, ground collapse) occurs as soil compacts and consolidates after the ground shaking ceases. Differential settlement occurs when the layers that liquefy are not of uniform thickness, a common problem when the liquefaction occurs in artificial fills. Settlement can range from 1 to 5%, depending on the cohesiveness of the sediments (Tokimatsu and Seed 1984). In the action area, differential settlement is not expected to be a significant hazard.

Landslides

Within the limits of ground disturbance of the action area, there is no risk of naturally occurring large landslides because it is essentially flat and topographically featureless.

Volcanic Activity

Volcanic activity is not a local concern. The nearest active volcanoes lie in Mono County, in the Mammoth Lakes/Long Valley area, to the northeast of Tulare County, and Lassen Peak in Lassen County.

3.12.1.3 Soils

The soils in the action area have been mapped by the U.S. Department of Agriculture, Soil Conservation Service (now called the Natural Resources Conservation Service) and USFS are described in the soil survey of Tahoe Basin Area, California and Nevada (Rogers 1974)¹. Kings Beach is within the Inville-Jabu soil association, which consists of nearly level to moderately steep, well-drained and moderately well-drained coarse sandy loams that are deep to very deep over a hardpan. Inville-Jabu soils typically occur on moraines, glacial outwash terraces, and fans.

According to the soil survey, soils in the action area predominantly comprise stony, sandy loams, beach sand, and gravelly alluvium. These soils generally have a slow runoff rate and a slight hazard of erosion. The dominant soil map unit in the action area is Jabu stony sandy loam, moderately fine subsoil variant of the Jabu series. This well-drained soil formed in andesitic alluvium overlying older lake sediments. It has a slow runoff rate and erosion hazard is slight. The easternmost edge of the action area (and a small portion of land in the center of the action area) is mapped as the Umpa very stony sandy loam soil. This soil is well-drained, overlays andesite, and is associated with steeper mountainous uplands. It has a medium runoff rate and erosion hazard is slight. The western shoreline portion of the action area is mapped as a beach. It is composed of

¹ This soil survey for this area is currently being updated; however, new mapping efforts will most likely not provide any new substantial differences in known soil conditions.

coarse sand derived mainly from granitic alluvium. Lastly, Griff Creek, on the extreme western side of the action area, is mapped as recent gravelly alluvial land. Gravelly alluvial land consists of small areas of recent gravelly alluvium adjacent to stream channels and in meadows. The runoff rate is very slow and the erosion hazard is slight.

None of the soil map units within the action area are listed as hydric soils (a *hydric soil* is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part) on the National Resources Conservation Service's List of Hydric Soils (Natural Resources Conservation Service 1995).

Soil map units within the action area do not exhibit any shrink-swell characteristics (i.e., they are not expansive).

It is important to recognize that the soil properties described above characterize the soils in their natural, unaltered condition. Development along the shoreline of Kings Beach has altered soil characteristics.

3.12.1.4 Land Capability

Land capabilities districts (LCDs) have been determined for all areas within the Basin. *Land capability* is “the level of use an area can tolerate without sustaining permanent (environmental) damage through erosion or other causes” (Bailey 1974). LCD classes range from 1 to 7, with lower LCD values indicating that the land has a low capability for development (Figure 3.12-1). Use of an area of land is defined as *land coverage* by TRPA and occurs with impervious surfaces, manufactured structures, improvements or other features that prevent vegetation growth and precipitation from infiltrating into the ground surface. A land capability verification of the proposed action was performed by TRPA in 2004 and determined that two land capability classifications exist within the action area: 1b and 5. Classification 1 lands (which include 1a, 1b, and 1c) are not suited for development, grazing, or forestry use. Classification 1b lands are naturally wet, poorly drained, and critical for management and protection of water quality. The allowable impervious cover is 1% for Classification 1b lands. Classification 5 lands are

moderately well suited for urbanization, forestry, and intensive recreation. They are generally flat to moderately sloping, with little or no surface erosion problem. The allowable impervious cover is 25% for Classification 5 lands. Classification 1b within the action area includes both beaches and SEZs. Most of the action area is mapped as Classification 5. However, this could change as a result of the pending verification of the backshore analysis with TRPA. Figure 3.12-1 summarizes LCDs within the Basin, and Figure 3.12-2 indicates LCDs within the KBCC.

3.12.1.5 Shoreland and Shorezone Areas

TRPA defines *shoreland* as the lesser of the distance from Lake Tahoe's high-water line to the littoral parcel's most landward boundary, or 300 feet landward. Where the littoral parcel is a narrow parcel not qualifying for a development right (e.g., roadway ROW or dedicated beach access parcel), the adjoining parcel's most landward boundary to the littoral parcel or 300 feet applies. Where the littoral parcel is split by a ROW but is considered one project area, the lesser of the most landward boundary of the project area or 300 feet applies.

TRPA defines *shorezone* as the area including the nearshore, foreshore, and backshore.

The *nearshore* consists of the zone extending from Lake Tahoe's low water elevation (6,223.0 feet Lake Tahoe Datum) to a lake bottom elevation of 6,193 feet Lake Tahoe Datum. The nearshore includes a minimum lateral distance of 350 feet measured from the shoreline (6,229.1 feet Lake Tahoe Datum). For other lakes within the Tahoe Region, the nearshore extends to a depth of 25 feet below the low water elevation.

The *foreshore* is the zone between the high and low water level, which is the zone of lake level fluctuation. This corresponds to elevations of 6,229.1 feet Lake Tahoe Datum and 6,223.0 feet Lake Tahoe Datum, respectively.

The *backshore* is the zone that extends from the high-water level (elevation 6,229.1 feet) to stable uplands. The allowable base land coverage in the backshore is 1%. Due to the interaction with lake waves and the inherent dynamic nature of littoral processes, this is

considered the area of instability. The backshore boundary is defined two ways: 1) The area of instability plus a 10-foot buffer measured landward from the mapped area of instability is considered the backshore boundary, and 2) the area of wave run-up, plus ten feet.

3.12.2 Regulatory Setting/Tahoe Regional Planning Agency TRPA

Thresholds

3.12.2.1 Federal

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans’ Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake (MCE), from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

Clean Water Act, Section 402/National Pollutant Discharge Elimination System

The CWA is discussed in detail in *Section 3.13, Water Quality*. However, because CWA Section 402 is directly relevant to grading and earthwork, additional information is provided below.

Amendments in 1987 to the CWA added Section 402p, which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. The EPA has delegated to the State Water Board the authority for the NPDES program in California, which is implemented by the state’s nine RWQCBs. Under the NPDES Phase

II Rule, construction activity disturbing 1 acre or more must obtain coverage under the state's General Construction Permit. General Construction Permit applicants are required to prepare a notice of intent (NOI) and a stormwater pollution prevention program (SWPPP) and implement and maintain BMPs to avoid adverse effects on receiving water quality as a result of construction activities, including earthwork.

Caltrans construction activity is covered by the NPDES permit (Order No. 99-06-DWQ). In addition, construction activity is subject to Tahoe Basin NPDES general construction permit (Board Order 6-00-03). A notification of construction is required for enrollment for projects that have 0.4 hectare (1 acre) of soil disturbance. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least 1 acre of total land area must comply with the provisions of this NPDES Permit and develop and implement an effective SWPPP. Implementation of the plan starts with the commencement of construction and continues through the completion of the project. Upon completion of the project, the applicant must submit a Notice of Termination to the RWQCB to indicate that construction is completed.

The Memorandum of Understanding (MOU) between TRPA and the LRWQCB is discussed in detail in *Section 3.13, Water Quality*.

3.12.2.2 State

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Act (*PRC Sec. 2621 et seq.*), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (Earthquake Fault Zones). It also defines criteria for

identifying active faults, giving legal weight to terms such as active and establishes a process for reviewing building proposals in and adjacent to Earthquake Fault Zones.

Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are “sufficiently active” and “well-defined.” A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as within the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997). There are no faults identified or mapped in the action area as defined by the act.

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (*PRC Sec. 2690–2699.6*) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones (SHZs).

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites in Seismic Hazard Zones until appropriate site-specific geologic or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans. There are no SHZs identified or mapped in the action area.

3.12.2.3 Local

Geotechnical Investigations

Local jurisdictions typically regulate construction activities through a multistage permitting process that may require preparation of a site-specific geotechnical investigation. The purpose of a site-specific geotechnical investigation is to provide a geologic basis for the development of appropriate construction design. Geotechnical investigations typically assess bedrock and Quaternary geology, geologic structure, soils, and previous history of excavation and fill placement.

As part of their general plan, Placer County (Placer County 1994) requires the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., ground shaking, landslides, liquefaction, critically expansive soils, avalanches, etc.). See *Placer County General Plan* below for additional information. Additionally, Article 15.48 of Chapter 15 of the Placer County Code (Placer County 2006a) states a soil or geologic investigation report should be performed in areas of known or suspected geological hazards, including landslide hazards and hazards of ground failure stemming from seismically induced ground shaking (*Ord. 5407-B § 13, 2006; Ord. 5056-B [part], 2000*).

Two geotechnical reports have been prepared for this proposed action (Kleinfelder 2004, 2006). The purpose of these reports was to evaluate the feasibility of the proposed construction with respect to the observed subsurface conditions and to provide geotechnical recommendations for the project design. These reports include documentation of soils that may be subject to fault rupture hazard, ground-shaking hazard, or any other limitations. All relevant recommendations from these reports have been included in the *Mitigation, Avoidance, Minimization, and Compensation Measures* section of this section.

Local Grading and Erosion Control Ordinances and Construction Specifications

Many counties and cities have grading and erosion control ordinances. These ordinances are intended to control erosion and sedimentation caused by construction activities. A grading permit is typically required for construction-related projects. As part of the permit, the project applicant usually must submit a grading and erosion control plan, vicinity and site maps, and other supplemental information. Standard conditions in the grading permit include a description of BMPs similar to those contained in a SWPPP.

Placer County Code

Article 15.48 of Chapter 15 of the Placer County Code (Placer County 2006a) describes permitting and issues related to grading, erosion, and sediment control. It also describes Basin area special restrictions and exemptions. Article 12.32 of Chapter 12 of the Placer County Code (Placer County 2006a) describes shoreline protection regulations, including 12.32.060 standards for regulating all construction and alterations on the shoreline, underlying land, or within a lake (12.32.060). As a lead agency on this project, Placer County will comply with grading, erosion, and sediment control through development of a project-specific SWPPP subject to approval by the LRWQCB.

Placer County General Construction Specifications

Placer County General Construction Specifications (Placer County 1994) contain information on grading, subbases and bases, surfacings and pavements, structures, drainage facilities, ROW and traffic control facilities, and materials. Because the majority of improvements are within the Caltrans ROW, construction specifications to be developed for the project will comply with applicable Caltrans standards. For consistency, proposed improvements in the Placer County ROW will also comply with Caltrans standards.

Placer County General Plan

Goals, policies, and implementation programs of the Health and Safety section of the Placer County General Plan (Placer County 1994) that are aimed at reducing the seismic risk to people and property and applicable to the proposed action are described below.

Any substantial conflict between the proposed action and these goals, policies, and implementation programs would constitute an adverse effect.

Seismic and Geological Hazards

Goal 8.A: To minimize the loss of life, injury, and property damage due to seismic and geological hazards.

Policies

8.A.1. The County shall require the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., ground shaking, landslides, liquefaction, critically expansive soils, avalanche).

8.A.9. The County shall require that the location and/or design of any new buildings, facilities, or other development in areas subject to earthquake activity minimize exposure to danger from fault rupture or creep.

8.A.10. The County shall require that new structures permitted in areas of high liquefaction potential be sited, designed, and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.

TRPA Regional Plan for the Lake Tahoe Basin

Goals and policies of the Regional Plan for the Basin (Tahoe Regional Planning Agency 2004b) that are applicable to the proposed action are as follows.

Land Use Element

Natural Hazards

Goal #1: Risks from natural hazards (e.g., flood, fire, avalanche, earthquake) will be minimized.

Policies

2. *Prohibit construction, grading, and filling of lands within the 100-year flood plain and in the area of wave run-up except as necessary to implement the goals and policies of the plan. Require all public utilities, transportation facilities, and other necessary public uses located in the 100-year flood plain and area of wave run-up to be constructed or maintained to prevent damage from flooding and to not cause flooding.*

Water Quality

Goal #1: Reduce loads of sediment and algal nutrients to Lake Tahoe; meet sediment and nutrient objectives for tributary streams, surface runoff, and sub-surface runoff, and restore 80 percent of the disturbed lands.

Policies

3. *Application of BMPs to projects shall be required as a condition of approval for all projects.*
5. *Units of local government, state transportation departments, and other implementing agencies shall restore 25 percent of the sez lands that have been disturbed, developed, or subdivided in accordance with the capital improvements program (part ii).*

Goal #2: Reduce or eliminate the addition of other pollutants which affect, or potentially affect, water quality in the Tahoe Basin.

Policies

7. *The BMPs will be amended to include special construction techniques, discharge standards, and development criteria applicable to projects in the shorezone.*

Conservation Element

Soils

Goal #1: Minimize soil erosion and the loss of soil productivity.

Policies

1. *Allowable impervious land coverage shall be consistent with the threshold for impervious land coverage.*

2. *No new land coverage or other permanent disturbance shall be permitted in land capability districts 1–3 except for those uses as noted in a, b, and c below:*
 - A. *Single family dwellings may be permitted in land capability districts 1–3 when reviewed and approved pursuant to the individual parcel evaluation system (IPES). (See Goal #1, Policy 2, Development and Implementation Subelement).*
 - B. *Public outdoor recreation facilities may be permitted in land capability districts 1–3 if:*
 - (1) *The project is a necessary part of a public agency’s long range plans for public outdoor recreation;*
 - (2) *The project is consistent with the recreation element of the Regional Plan;*
 - (3) *The project, by its very nature must be sited in land capability districts 1–3;*
 - (4) *There is no feasible alternative which avoids or reduces the extent of encroachment in land capability districts 1–3;*
 - (5) *The impacts are fully mitigated; and*
 - (6) *Land capability districts 1–3 lands are restored in the amount of 1.5 times² the area of land capability districts 1–3 which is disturbed or developed beyond that permitted by the Bailey coefficients.*
 - C. *Public service facilities are permissible uses in land capability districts 1–3 if:*
 - (1) *The project is necessary for public health, safety or environmental protection;*
 - (2) *There is no reasonable alternative, which avoids or reduces the extent of encroachment in land capability districts 1–3;*

² Per Chapter 20 of the TRPA Code, mitigation ratio of 1.5 to 1 in low capability lands only applies to non-water quality elements of a project.

- (3) *The impacts are fully mitigated; and*
- (4) *Land capability districts 1–3 lands are restored in the amount of 1.5 times³ the area of land capability districts 1–3 which is disturbed or developed beyond that permitted by the Bailey coefficients.*
6. *Grading, filling, clearing of vegetation (which disturbs soil), or other disturbances of the soil are prohibited during inclement weather and for the resulting period of time when the site is covered with snow or is in a saturated, muddy, or unstable condition. Special regulations and construction techniques will apply to all construction activities occurring between October 15 and May 1.*
7. *All existing natural functioning SEZs shall be retained as such and disturbed SEZs shall be restored whenever possible.*

Shorezone

Goal #1: Provide for the appropriate shorezone uses of Lake Tahoe, Cascade Lake, and Fallen Leaf Lake while preserving their natural and aesthetic qualities.

Policies

1. *All vegetation at the interface between the backshore and foreshore zones shall remain undisturbed unless allowed by permit for uses otherwise consistent with the shorezone policies.*
4. *Class 1 capability shorezones shall be managed consistent with the goals and policies of the stream environment zone subelement.*
6. *Low to moderate intensity dwelling and recreational uses should be allowed in the stable and high capability backshore areas of class 4 and 5 capability shorezones.*
8. *Stream channel entrances to the lake shall be maintained to allow unobstructed access of fishes to upstream spawning sites.*

³ Per Chapter 20 of the TRPA Code, mitigation ratio of 1.5 to 1 in low capability lands only applies to non-water quality elements of a project.

Stream Environment Zone

Goal #1: Provide for the long-term preservation and restoration of stream environment zones.

Policies

2. *SEZ lands shall be protected and managed for their natural values.*
5. *No new land coverage or other permanent land disturbance shall be permitted in stream environment zones except for those uses as noted in a, b, c, d, and e below:*
 - A. *Public outdoor recreation facilities are permissible uses in stream environment zones if:*
 - (1) *The project is a necessary part of a public agency's long range plans for public outdoor recreation;*
 - (2) *The project is consistent with the recreation element of the regional plan;*
 - (3) *The project, by its very nature, must be sited in a stream environment zone;*
 - (4) *There is no feasible alternative which would reduce the extent of encroachment in stream environment zones;*
 - (5) *The impacts are fully mitigated;*
 - (6) *Stream environment zone lands are restored in the amount of 1.5 times the area of stream environment zone which is disturbed or developed by the project.*
 - B. *Public service facilities are permissible uses in stream environment zones if:*
 - (1) *The project is necessary for public health, safety or environmental protection;*
 - (2) *There is no reasonable alternative, including spans, which avoids or reduces the extent of encroachment in stream environment zones;*
 - (3) *The impacts are fully mitigated; and*

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TRPA Code of Ordinances

The following TRPA ordinances (Tahoe Regional Planning Association 2004a) apply to activities associated with the proposed action.

- Section IV (Site Development Provisions): This section has information on Land Coverage Standards (Chapter 20), Best Management Practice Requirements (Chapter 25), Natural Hazard Standards (Chapter 28), and Design Standards (Chapter 30).
- Section VII (Shorezone Provisions): This section has information on Development Standards in the Backshore (Chapter 55).
- Section VIII (Grading and Construction Provisions): This section has information on Grading and Construction Schedules (Chapter 62), Grading Standards (Chapter 64), and Vegetation Protection During Construction (Chapter 65).
- Section IX (Resource Management Provisions): This section has information on Vegetation Protection and Management (Chapter 74).
- Section X (Water Quality Provisions): This section has information on Water Quality Control (Chapter 81) and Water Quality Mitigation (Chapter 82).

Water Quality Management Plan for the Lake Tahoe Region

The Handbook of BMPs in the Water Quality Management Plan for the Lake Tahoe Region (Tahoe Regional Planning Agency 1988) identifies the recommended BMPs for various situations. This document is currently being updated. Additional guidance and design documents will be utilized in the design of temporary and permanent BMPs for this project. For further information on the Water Quality Management Plan for the Lake Tahoe Region, as well as specific BMPs, see *Section 3.13, Water Quality*.

Kings Beach Community Plan

Pursuant to Chapter 14 of the TRPA Code of Ordinances (Tahoe Regional Planning Association 2004a), the Kings Beach Community Plan (Placer County and Tahoe Regional Planning Agency 1996) supersedes certain plans and regulations established by

the TRPA PASs and the TRPA Code of Ordinances for the area within the Community Plan boundaries. For purposes of Placer County land use regulation, the Community Plan and the Placer County General Plan and implementing ordinances are one and the same. The Community Plan is intended to serve as the mutual plan for all regulatory authorities.

There are no goals and objectives, special policies, programs, and strategies in the Kings Beach Community Plan that are directly relevant to geology, seismicity, and soils. However, the Conservation Element (itself is a supplement to the Conservation Element of the Regional Plan for the Basin) contains updated information about baseline information, TRPA thresholds, TRPA Regional Plan requirements, and additional information on SEZs, Land Coverage, and Water Quality.

3.12.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

This section describes analysis relating to geology, seismicity, and soils for effects as a result of the built alternatives. It describes the methods used to determine whether an effect would be adverse or not. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) adverse effects accompany each impact discussion.

3.12.2.4 Approach and Methods

Evaluation of the impacts in this section is based on technical maps, soil surveys, reports, and professional judgment. This impact analysis assumes that the project applicant will conform to all regulatory requirements as described above. UBC standards and California Building Standards Code (CBSC) standards do not apply because no structures intended for human occupancy would be built as part of the proposed action.

3.12.2.5 Evaluation of Impacts

Alternative 1

Under this alternative, it is assumed that the existing conditions would persist and that there would be minimal associated environmental consequences.

Alternatives 2, 3, and 4

Impact GEO-1: Increase the Potential for Structural Damage and Injury Caused by Fault Rupture

As described in the *Seismicity* section above, fault rupture from buried thrust faults, inferred faults, and unidentified faults presents a potentially adverse hazard. Fault rupture has the potential to compromise the structural integrity of proposed new roadway facilities and expose a greater surface area (and more people) to fault rupture hazard. However, this is not considered an adverse effect because, based on existing published data on officially recognized faults, the risk of surface rupture and faulting in the action area is apparently low because none of the faults described above occur within an Alquist-Priolo Earthquake Fault Zone nor directly occur in the vicinity of the action area. Additionally, new features in the form of off-street parking and operational improvements will lead to additional hard coverage with minimal changes to the existing landscape. Thus, the area that could potentially be affected by fault rupture would not adversely increase in size. Furthermore, the proposed action itself does not increase the present surface rupture hazard. No mitigation is required.

Impact GEO-2: Increase the Potential for Structural Damage and Injury Caused by Ground Shaking

A large earthquake could potentially cause moderate ground shaking in the action area. Anticipated ground acceleration at the site is great enough to cause structural damage to new features. However, new features in the form of off-street parking and operational improvements will lead to minimal changes to the existing landscape and man-made facilities. Thus, the area project improvements that could potentially be affected by ground shaking would not significantly increase in size and would have a low potential to result in any adverse effects, structural damage, or injury. Furthermore, the proposed

action itself does not increase the present ground-shaking hazard. Finally, the recommendations in Appendix B of each Kleinfelder geotechnical report (Kleinfelder 2004, 2006) concerning site preparation, excavation, structural fill, compacted fill, utility trench bedding and backfill, subsurface drainage, subgrade and aggregate base for paved areas, aggregate base for concrete slabs, and asphalt concrete pavement would reduce further minimize this effect. Minimization Measure GEO-1 summarizes the mitigation measures found in Appendix B of each Kleinfelder geotechnical report (not included).

Impact GEO-3: Increase the Potential for Structural Damage and Injury as a Result of Development on Materials Subject to Liquefaction

Based on the sedimentological characteristics of the soils and the nonsaturated nature of the soil types and moderate depth to groundwater, the liquefaction hazard is expected to be low for the action area.

Impact GEO-4: Increase the Potential for Structural Damage and Injury as a Result of Landsliding

Within the limits of ground disturbance of the action area, there is no risk of naturally occurring large landslides because it is essentially flat and topographically featureless.

Impact GEO-5: Temporarily Increase the Potential for Accelerated Runoff, Erosion, and Sedimentation as a Result of Grading and Construction Activities

The proposed roadway and off-street improvements would involve grading, removal of vegetation cover, and loading activities associated with construction activities. These activities could temporarily increase runoff, erosion, and sedimentation. Construction activities could also result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at the construction sites and staging areas. The following actions will ensure that runoff, erosion, and sedimentation do not occur as a result of the proposed action.

However, a SWPPP would be developed by a qualified engineer and landscape architect or erosion control specialist and implemented before construction. The SWPPP would be kept on-site during construction activity and will be available upon request to representatives of the LRWQCB. The objectives of the SWPPP would be to 1) identify

pollutant sources that may affect the quality of stormwater associated with construction activity, and 2) identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. Therefore, the SWPPP would include a description of potential pollutants, management of sediment, and hazardous materials present on-site during construction (including vehicle and equipment fuels). The SWPPP would also include details of how the sediment and erosion control practices (BMPs) would be implemented. The SWPPP would comply with applicable state and federal water quality regulations.

Compliance with applicable sections of Article 15.48 of Chapter 15 and Article 12.32 of Chapter 12 of the Placer County Code (Placer County 2006a), Placer County General Construction Specifications (Placer County 1994), Caltrans Standard Specifications (May 2006) and Standard Plans (May 2006), goals and policies of the Regional Plan for the Lake Tahoe Basin (Tahoe Regional Planning Agency 2004b), TRPA Code of Ordinances (Tahoe Regional Planning Agency 2004a), and the *Handbook of Best Management Practices in the Water Quality Management Plan for the Lake Tahoe Region* (Tahoe Regional Planning Agency 1988) would help to minimize any negative effects associated with runoff, erosion, and sedimentation, as well as soil compaction. Construction site BMPs will also comply with the Caltrans Construction Site BMPs manual.

Additionally, the recommendations in Appendix B of each Kleinfelder geotechnical report (Kleinfelder 2004, 2006) concerning site preparation, excavation, structural fill, compacted fill, utility trench bedding and backfill, subsurface drainage, subgrade and aggregate base for paved areas, aggregate base for concrete slabs, and asphalt concrete pavement would help to minimize the severity of this effect. Minimization Measure GEO-1 summarizes the mitigation measures found in Appendix B of each Kleinfelder geotechnical report (not included).

For further information on specific BMPs, see *Section 3.13, Water Quality*.

Impact GEO-6: Increase the Potential for Structural Damage and Injury as a Result of Development on Expansive Soils

Soil map units within the action area are not considered expansive. Expansive materials are those that could pose a risk to structural damage due to their significant clay content, which can result in swelling and compression during changes in moisture content.

3.12.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Project components located in areas that are either too steep of terrain or located in wetland, marsh, and/or SEZ were eliminated from consideration. Under Alternatives 2 through 4, new features in the form of off-street parking and operational improvements will lead to additional hard coverage with minimal changes to the existing landscape. These changes are not anticipated to result in substantial impacts pursuant to CEQA, NEPA, or TRPA Code. The existing geology has been taken into consideration during the project design process. Compliance with standard permit requirements would help to minimize the severity of most effects. However, beyond the identified standard permits (e.g., a SWPPP), Minimization Measure GEO-1 will further minimize effects on geologic, seismic, or soil resources.

Minimization Measure GEO-1: Incorporate Recommendations from Geotechnical Reports into Project Design

Recommendations in Appendix B (not included) of each Kleinfelder geotechnical report (Kleinfelder 2004; Kleinfelder 2006) concerning site preparation, excavation, structural fill, compacted fill, utility trench bedding and backfill, subsurface drainage, subgrade and aggregate base for paved areas, aggregate base for concrete slabs, and asphalt concrete pavement will be incorporated into the project design, thus minimizing any negative effects associated with ground-shaking hazards, and runoff, erosion, and sedimentation from construction activities. In addition, these recommendations, if fully implemented, will result in well-built, long-term functioning improvements. The project applicant and its contractor(s) will be required to implement this minimization measure before any construction activities begin. The recommendations will be incorporated into the project construction specifications as appropriate.

3.12.5 Compliance with Tahoe Regional Planning Agency Code

The following TRPA Thresholds (Tahoe Regional Planning Agency 2002) apply for soil conservation.

- **SC1 (Impervious Coverage):** The TRPA threshold for soil conservation requires that impervious coverage be in compliance with the coverage coefficients defined in the *Land Capability Classification of the Lake Tahoe Basin California-Nevada, A Guide for Planning* (Bailey 1974). Additional land coverage is monitored on a project basis and recorded in square feet. Coverage may be utilized directly or by coverage transfers within a related project area. An excess coverage mitigation program is in place to gradually reduce existing land coverage.
- **SC2 (Naturally Functioning SEZ):** TRPA policy requires the preservation of existing naturally functioning SEZ lands in their natural hydrologic condition; the restoration of all disturbed SEZ lands in undeveloped; unsubdivided lands and the restoration of the SEZ lands that have been identified as disturbed, developed or subdivided to obtain a 5% total increase in the area of naturally functioning SEZ lands.

TRPA is concerned about the potential creation of additional coverage and its effect on soil. According to Chapter 20.3.B(8) of the TRPA Code of Ordinances (Tahoe Regional Planning Association 2004a), the proposed roadway and off-street improvements will create impervious coverage that is not exempt from the Bailey land coverage limits. Consequently, the proposed action is subject to the Bailey land coverage limit requirements identified in Chapter 20 (Land Coverage Standards) of the TRPA Code of Ordinances (Tahoe Regional Planning Association 2004a) and these requirements must be met.

TRPA requires that any newly created impervious coverage that did not exist prior to 1972 be offset with the creation of restored covered areas or the transfer of banked coverage. The addition of asphalt/concrete and the placement of structures via shoulder widening, intersection reconstruction, and associated drainage improvements are

expected to increase impervious land coverage within the action area. In addition, these improvements could require vegetation removal. However, these areas will be revegetated with native plants and grasses upon completion of the improvements, although revegetation of some improved areas may not be feasible due to the conversion of these areas to “hard” impervious surfaces. All vegetation removal and subsequent restoration (including revegetation) of existing soft coverage areas (“soft” coverage consists of compact nonvegetated soils) within the action area would be accomplished by applying appropriate (nonimpervious) erosion control materials as determined by Caltrans Landscape Architecture branch, in conjunction with TRPA approval.

The amount of proposed new, relocated, and/or transferred land coverage in SEZ and non-SEZ lands is currently unknown. This is because the verified available coverage will not be known until final design and coverage verification is completed and a permit is secured from TRPA in accordance with the TRPA code. A land capability verification of the proposed action was performed by TRPA in 2004, and Placer County is currently undergoing backshore verification with TRPA.

Once the preferred alignment alternative and off-site parking locations have been identified, the amount of SEZ and non-SEZ lands converted to hard coverage as part of the proposed action, as well as the amount of needed to compensate for the loss of existing soft coverage/creation of additional hard coverage, will be identified. All new hard coverage created with implementation of the proposed action will be fully compensated based on Chapter 20 of the TRPA Code, which requires a mitigation ratio of 1 to 1 for high capability lands and 1.5 to 1 for low capability lands that are non-water quality improvements (as determined by TRPA). If restoration (including revegetation) of existing soft coverage areas is not feasible to fully compensate the new hard coverage, the application of banked coverage/purchase of land coverage credits will be made.

The coverage impacts and details of the restored soft covered areas and transfer of banked coverage will be assessed through the Coverage Verification submittal to TRPA during the design phase for the proposed action, and all coverage transfers will be in compliance with the TRPA Code. TRPA is concerned about how to prevent new coverage from being created after the roadway improvements are made because there is

potential for soft coverage to increase after the roadway widening. In areas where the roadway would be widened, automobiles may continue to park off pavement and create new areas of compacted dirt and disturbance of adjacent roadways. In an attempt to thwart autos from creating new areas of coverage, Placer County will analyze the feasibility of incorporating rock embedded berms, bollards, and landscaping as part of the proposed action.

3.13 Water Quality

The following discussion summarizes the existing water quality environment and regulatory environment, as well as an analysis of direct and indirect environmental effects of the proposed action. Where feasible, mitigation measures are recommended to reduce the severity of identified effects. In many instances, the effects to water quality will be beneficial as a result of the proposed action. The Kings Beach watershed hydrologic and SEZ existing conditions information presented in this analysis is based on information from the *Kings Beach Watershed Improvement Project Final Hydrologic Conditions Report* (Appendix G; Entrix 2006b) and *Kings Beach Watershed Improvement Project Final SEZ Existing Conditions and Alternatives Report* (Entrix 2006d).

3.13.1 Affected Environment

As illustrated by Figure 3.13-1, the proposed action is located in the lower portion of a watershed that is defined by the following topographic features: (1) northern boundary—a ridge line running east/southeast from Martis Peak at the northwest corner of the watershed to Mount Baldy at the northeast corner; (2) eastern boundary—from Mount Baldy south along a ridgeline to a point due east of Kings Beach, then west/southwest through Kings Beach to the Lake Tahoe shoreline; (3) western boundary—from Martis Peak at the northwest corner south along a ridgeline and the western side of Griff Creek into Kings Beach, then slightly southwest to the Lake Tahoe shoreline; and (4) southern boundary—the Lake Tahoe immediately south of Kings Beach.

Several annual, perennial, and ephemeral creeks, drainages, and ditches in the action area convey surface flows from upstream portions of the watershed, across the action area, and into Lake Tahoe. The most significant of these creeks is Griff Creek, a perennial stream located along the western edge of the action area.

The quality of surface flows originating in the upper watershed is generally expected to be good because of the limited disturbance in this area. However, as these flows enter the

lower portion of the watershed and are conveyed across the action area, their quality often degrades below certain federal, state, and TRPA standards because of the entrainment of various pollutants, including phosphorus, nitrogen, and sediment, within the flows. As such, surface flows entering Lake Tahoe from the action area could exceed various federal, state, and TRPA water quality standards under certain conditions. The water quality of Lake Tahoe, as the receiving water for all surface flows in the action area watershed, is of primary concern for the proposed action.

Lake Tahoe is the world's tenth deepest lake at 505 meters (1,657 feet) with a mean depth of 313 meters (1,027 feet). The water quality of the lake is generally good and supports several beneficial uses as identified in the Lahontan Region Water Quality Control Plan (Basin Plan). These uses include water supply, navigation, recreation, fishing, and species habitat.

Although nutrient concentrations are very low in the lake at present, relatively small nutrient loadings can seriously affect Lake Tahoe's water quality. This is attributable primarily to the lake's long retention time. Lake Tahoe's large volume of 156 km³ and its relatively small watershed are largely responsible for the lake's approximate 700-year hydraulic retention time (Goldman et al., p. 312, 1989). When nutrients enter the lake, they remain active and are used continually until the natural retention time is up.

Perhaps the greatest change to Lake Tahoe in the last four decades has been the enhanced transport of sediment from the watershed and the loss of about 30 cm (12 inches) per year of clarity in Lake Tahoe's waters. Because Lake Tahoe has a very long residence time (defined as the average time a parcel of water spends in a body of water), the flushing action of precipitation and runoff that benefits many other lakes cannot be relied upon to preserve Lake Tahoe. Therefore, sediments and nutrients discharged to Lake Tahoe from various surrounding watersheds may remain suspended in the water column or settled on the lake bottom for hundreds of years. Increased nutrient loading rates exert their full effect through a gradual buildup of nutrient concentrations over many years. The buildup

of nutrients and sediments stimulates algal growth and increases the concentration of fine suspended particles, thereby decreasing clarity of the lake (Entrix 2006b).

3.13.1.1 Caltrans Contribution to Stormwater in the Action Area

Highway stormwater runoff contains a variety of characteristic contaminants. During storm events, rainwater first collects atmospheric pollutants and, upon impact, gathers roadway deposits. This runoff can negatively affect the receiving waters in various ways, including sedimentation, eutrophication (the proliferation of microscopic organisms and vegetation), accumulation of pollutants in sediments and benthic organisms (organisms residing on the bottom of an area covered by water), and destruction of native species. The Caltrans Storm Water Research and Monitoring Program has collected water quality data for three consecutive years (2000–2003) from six highway runoff–monitoring sites in the Tahoe Basin. Descriptions of these sites and summaries of the monitoring data can be found in the Annual Data Summary (CTSW-RT-030-054.36.02) that is submitted to the State Water Board by the Caltrans Storm Water Monitoring Program. The Caltrans highway runoff value is the average concentration that is calculated from the highway water quality monitoring data. The average values from the 23 statewide monitoring sites (including the six located in the Tahoe Basin) are listed in Table 3.13-1.

Based on the highway stormwater runoff data collected by the Caltrans Storm Water Research and Monitoring Program, pollutants that are expected to be found in runoff from the proposed action include conventional constituents (biochemical oxygen demand [BOD], calcium carbonate [CaCO_3], chemical oxygen demand [COD], total dissolved solids [TDS], total organic carbon [TOC], total suspended solids [TSS] and total volatile suspended solids [TVSS], etc.) hydrocarbons, metals, microbial agents, nutrients, volatile and semi-volatile organics, pesticides, and herbicides. Pollutants are usually deposited on the roadway as a result of fuel combustion processes, lubrication system losses, tire and brake wear, transportation load losses, paint from infrastructure, and atmospheric fallout. Sources of specific pollutants are outlined in Table 3.13-2.

Table 3.13-1. Caltrans Tahoe Basin Stormwater Data on Pollutant Concentrations

Constituent/Parameter	Units	Average Stormwater Runoff Concentration from Tahoe Basin Highways
Conventional		
pH	pH units	7.0
Electrical Conductivity	µmhos/cm	87
Total Suspended Solids	mg/L	103
Total Dissolved Solids	mg/L	83
Hardness as CaCO ₃	mg/L	34
Dissolved Organic Carbon	mg/L	17
Total Organic Carbon	mg/L	20
Nutrients		
Nitrate (as N)	mg/L	1.0
Total Kjeldahl Nitrogen	mg/L	1.0
Total Phosphorus	mg/L	0.27
Dissolved Orthophosphate	mg/L	0.10
Total Metals		
Arsenic	µg/L	2.5
Cadmium	µg /L	0.6
Chromium	µg /L	8
Copper	µg /L	27
Lead	µg /L	37
Nickel	µg /L	12
Zinc	µg /L	144
Dissolved Metals		
Arsenic	µg /L	0.9
Cadmium	µg /L	0.2
Chromium	µg /L	3
Copper	µg /L	13
Lead	µg /L	7
Nickel	µg /L	5
Zinc	µg /L	60

Note: µmhos = micromoles, mg = milligrams, µg = micrograms, L = liters.

Source: Caltrans Tahoe Highway Runoff Characterization and Sand Trap Effectiveness Studies, 2000–2003 Monitoring Report, June 2003. CTSW-RT- 054.36.02.

Table 3.13-2. Caltrans Pollutant Sources

Constituents	Primary Sources
Particulates	Pavement wear, vehicles, atmosphere, maintenance, snow/ice abrasives, sediment disturbance
Nitrogen, Phosphorus	Atmosphere, roadside fertilizer application, sediments
Lead	Auto exhaust, tire wear, lubricating oil and grease, bearing wear, atmospheric fallout
Zinc	Tire wear, motor oil, grease
Iron	Auto body rust, steel highway structures, moving engine parts
Copper	Metal plating, bearing and bushing wear, moving engine parts, brake lining wear, fungicide and insecticide application
Cadmium	Tire wear, insecticide application
Chromium	Metal plating, moving engine parts, brake lining wear
Nickel	Diesel fuel and gasoline, lubricating oil, metal plating, bushing wear, brake lining wear, asphalt paving
Manganese	Moving engine parts
Bromide	Exhaust
Cyanide	Anticake compound used to keep deicing salt granular
Sodium, Calcium	Deicing salts, grease
Chloride	Deicing salts
Sulphate	Roadway bed, fuel, deicing salts
Petroleum	Spills, leaks or blow-by of motor lubricants, antifreeze and hydraulic fluids, asphalt leachate
PCBs, Pesticides	Spraying of highway rights-of-way, atmospheric deposition, PCB catalyst in synthetic tires
Pathogenic Bacteria	Soil litter, bird droppings, trucks hauling livestock/stockyard waste
Rubber	Tire wear
Asbestos*	Clutch and brake lining wear

Note:

* No mineral asbestos has been identified in runoff; however some breakdown products of asbestos have been measured.

Source: United States Department of Transportation. Federal Highway Administration. Publication No. FHWA-PD-96-032. June 1996.

3.13.2 Regulatory Setting/ Tahoe Regional Planning Agency Thresholds

3.13.2.1 Federal Clean Water Act

Section 401 of the CWA requires water quality certification from the State Water Board or from an RWQCB when the project requires a CWA Section 404 permit from the USACE to dredge or fill within a water of the United States.

Along with CWA Section 401, CWA Section 402 establishes the NPDES permit for the discharge of any pollutant into waters of the United States. The EPA has delegated administration of the NPDES program to the State Water Board and nine RWQCBs. The State Water Board and RWQCB also regulate other waste discharges to land within California through the issuance of waste discharge requirements under authority of the Porter-Cologne Water Quality Act.

The State Water Board has developed and issued a statewide NPDES permit to regulate storm water discharges from all Caltrans highways and facilities. Caltrans construction projects are regulated under the statewide permit, and projects performed by other entities on Caltrans right-of-way (encroachments) are regulated by the State Water Board's Statewide General Construction Permit. All construction projects over 1 acre require a SWPPP to be prepared and implemented during construction. Caltrans activities less than 1 acre require a Water Pollution Control Program.

In 1972, the Federal Water Pollution Control Act was amended making the discharge of pollutants to the waters of the United States from any point source unlawful, unless the discharge is in compliance with an NPDES permit. The Federal Water Pollution Control Act was subsequently amended in 1977 and was renamed as the CWA. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA, as amended by the Water Quality Act of 1987, states that stormwater discharges are point-source discharges and establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. The following are important sections of the CWA.

- Sections 303 and 304 provide water quality standards, criteria, and guidelines.
- Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate, or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect the quality of the state's waters (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401, which certifies that the project will not result in degradation of any water quality standards.
- Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permitting program is administered by RWQCBs, and is discussed in detail later.
- Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is administered by the USACE.
- Section 208 requires states to develop areawide waste treatment management plans that include a process for identifying nonpoint sources and establishing feasible control measures. Plans prepared under section 208 are to be submitted to EPA in return for receiving federal financial assistance for the planning process. Decisions concerning NPDES Permits and Section 404 permits are supposed to be consistent with the section 208 plans. Because the proposed action is within TRPA jurisdiction, a 208 plan already exists, and through project compliance with applicable TRPA codes, the proposed action is properly covered under TRPA 208 plans.

3.13.2.2 State Porter-Cologne Water Quality Control Act

The State of California's Porter-Cologne Water Quality Act provides the basis for water quality regulation in California. The act requires a Report of Waste Discharge for any

discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state.

The State Water Board administers water rights, water pollution control, and water quality functions throughout the state, while the RWQCB is responsible for the protection of beneficial uses of water resources within its jurisdiction and uses planning, permitting, and enforcement authorities to meet this responsibility.

- **NPDES Program:** The State Water Board has issued Caltrans a Statewide NPDES Storm Water Permit (Order No. 99-06-DWQ), adopted July 15, 1999, which covers all Caltrans stormwater and authorized non-stormwater discharges in the state. In compliance with this permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP describes the minimum procedures and practices that Caltrans uses to reduce the pollutants it discharges from storm drainage systems owned or operated by Caltrans. It outlines procedures and responsibilities for protecting water quality at Caltrans facilities, including the selection and implementation of BMPs. The proposed action will be expected to follow the guidelines and procedures outlined in the SWMP and the regulations for the NPDES permit. Order No. 99-06-DWQ also addresses the regional concerns of the LRWQCB and requires that all projects in the Lake Tahoe Hydrologic Area comply with the RWQCB's Basin Plan. Specifically for construction activities in the Lake Tahoe Hydrologic Area, the LRWQCB adopted Order No. R6T-2005-2007 (General Permit No. CAG616002) for construction projects that disturb greater than 1 acre. To obtain coverage under this general permit, project proponents must submit a NOI and prepare a SWPPP to the LRWQCB. Order No. 6-91-31 is another general permit adopted by the Lahontan RWQCB that applies to construction projects that disturb less than an acre of soil and Form 200 must be filled out and submitted to the LRWQCB.

- **Municipal Separate Storm Sewer System (MS4) Program:** The EPA defines MS4 to include a conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, storm drains) owned or operated by a state, city, town, county or other public body having jurisdiction over disposal of stormwater and designed or used for collecting or conveying stormwater. EPA's Phase II Final Rule includes permit requirements for designated small municipalities that maintain control of a separate storm sewer system. The objectives of the Phase II regulations are to (1) reduce the discharge of pollutants to the maximum extent practicable, and (2) protect water quality. Caltrans must comply with an MS4 permit (the Tahoe MS4 municipal NPDES permit is Board Order No. R6T-2005-0026) that includes conveyances at SR 28 and meets or exceeds the requirements of the small municipalities within the action area.
- **Construction Activity Permitting:** Caltrans construction activities are covered by the NPDES permit (Order No. 99-06-DWQ). However, in addition, construction activity is subject to Lake Tahoe Hydro Unit General Permit for Discharges of Storm Water Runoff associated with Construction Activity (R6T-2005-0007). A notice of intent is required by the LRWQCB for enrollment for projects that have 0.4 hectare (1 acre) or more of soil disturbance. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least 1 acre of total land area must comply with the provisions of this NPDES Permit and develop and implement an effective SWPPP. Implementation of the plan starts with the commencement of construction and continues through the completion of the proposed action. Upon completion of the project, the applicant must submit a Notice of Termination to the LRWQCB to indicate that construction is completed.

3.13.2.3 Lahontan Regional Water Quality Control Board

The Porter-Cologne Act provides for the development and periodic review of basin plans that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Beneficial

uses represent the services and qualities of a water body (i.e., the reasons the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses. Basin plans are implemented primarily by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met (see discussion of the NPDES system in the *Clean Water Act* section above). Basin plans are updated every 3 years and provide the technical basis for determining waste discharge requirements and taking enforcement actions.

Basin plans are adopted and amended by the LRWQCB.

Construction activities are regulated under the NPDES General Permit for Discharges of Storm Water Runoff associated with Construction Activity (General Construction Permit), provided that the total amount of ground disturbance during construction exceeds 1 acre. In addition, this permit does not cover disturbance to lands classified as SEZs or Bailey Land Capability Classification 1b. A separate prohibition exemption must be granted for such activity. The LRWQCB enforces the General Construction Permit. Coverage under a General Construction Permit requires the preparation of a SWPPP and NOI. The SWPPP includes pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and a BMP monitoring and maintenance schedule. The NOI includes site-specific information and the certification of compliance with the terms of the General Construction Permit.

3.13.2.4 Local Regulations: Placer County and Tahoe Regional Planning Agency

Placer County published a Tahoe Basin Storm Water Management Plan (TSWMP) (Placer County 2006) to address the need for protection of critical habitat from pollutants that may be contained in stormwater runoff as dictated by Lahontan Board Order No. R6T-2005-0026 (NPDES Permit No. CAG616001) issued to Placer County, El Dorado

County, and the City of South Lake Tahoe. The primary goal of the TSWMP is to achieve compliance with the Phase I portion of the Municipal Stormwater Program Permit for small municipalities. The plan outlines how Placer County approaches the stormwater quality program and provides staff with guidance for implementing the program. Placer County recognizes that in order to achieve this primary goal, the following secondary goals also need to be achieved:

- Increasing public awareness of the effects of their activities upon water quality through public education;
- Increasing staff effectiveness by providing training to all involved personnel;
- Assisting business and residential compliance with all stormwater quality programs by offering workshops and other educational opportunities to audiences within the community; and
- Improving program strength by creating a stable funding plan.

TRPA is also designated by California, Nevada, and the EPA as the areawide water quality planning agency under Section 208 of the federal CWA. It adopted a bi-state plan, currently entitled Water Quality Management Plan for the Lake Tahoe Region (208 Plan). Most appropriate provisions of the 208 Plan, however, are incorporated into the Water Quality Control Plan for the North Lahontan Basin. TRPA established some regional goals and policies that are key elements to the region. In 1982, TRPA adopted Resolution No. 82-11, which includes environmental thresholds for the Lake Tahoe Basin. Among those thresholds is Water Quality 4, which establishes standards for total nitrogen, soluble inorganic nitrogen, total phosphorus, soluble phosphorus, total iron, and suspended sediment in tributary streams.

Chapter 3 of the *TRPA Thresholds Evaluation Report* covers water quality regulations and applicable thresholds for various water quality constituents. Chapter 3 states that:

The purity of Lake Tahoe and its tributary streams helps make the Tahoe Basin unique. Lake Tahoe is one the three clearest lakes of its size in the world. Its

unusual water quality contributes to the scenic beauty of the Region, yet it depends today upon a fragile balance among soils vegetation, and man. The focus of water quality enhancement and protection is the Basin is to minimize man-made disturbance to the watershed and to reduce or eliminate the addition of pollutants that result from development.

Chapter 3 of the *TRPA Thresholds Evaluation Report* on water quality presents two goals followed by relevant policies that will help achieve such goals.

Goal #1: Reduce loads of sediment and algal nutrients to Lake Tahoe; meet sediment and nutrient objectives for tributary streams, surface runoff, and sub-surface runoff and restore 80% of the disturbed lands.

Goal #2: Reduce or eliminate the addition of other pollutants that affect, or potentially affect, water quality in the Tahoe Basin.

Goal #1 has eight policies and Goal #2 has ten policies that can be found in the water quality chapter of the *TRPA Thresholds Evaluation Report*. The report also contains numeric water quality thresholds that are presented below.

TRPA water quality thresholds are as follows:

- WQ1—Decrease sediment load as required to attain turbidity values not to exceed 3 Nephelometric Turbidity Units (NTU) in littoral Lake Tahoe. In addition, turbidity shall not exceed 1 NTU in shallow waters of Lake Tahoe not directly influenced by stream discharges.
- WQ2—Average Secchi depth, December–March, shall not be less than 33.4 meters.
- WQ3—Annual mean phytoplankton primary productivity shall not exceed 52 gC/m²/yr. California: algal productivity shall not be increased beyond levels recorded in 1967–1971, based on a statistical comparison of seasonal and annual mean values.
- WQ4—attain a 90th percentile value for suspended sediment of 60mg/L, total nitrogen range of 0.15 to 0.23 mg/L, total phosphorus range of 0.005 to 0.030 mg/L, and total iron range of 0.01 to 0.07 mg/L (annual average).

- WQ5—Dissolved inorganic nitrogen, 0.5 mg/L; dissolved phosphorus, 0.1 mg/L; dissolved iron, 0.5 mg/L; suspended sediment, 250 mg/L, grease and oil 2.0 mg/L, total phosphate as P, 0.1 mg/L, and turbidity, 20 NTU.
- WQ6—Surface water infiltration into the groundwater shall comply with the Uniform Regional Run Off guidelines. For total nitrogen, 5 mg/L; total phosphorus, 1 mg/L; total iron, 4 mg/L; turbidity, 200 NTU; and grease and oil, 40 mg/L.
- WQ7—Attain existing water quality standards.

In addition, Chapter 81 of the TRPA Code of Ordinances has additional water quality control objectives. Chapter 81 states that pollutants in surface runoff shall not exceed the following at the 90th percentile:

- Dissolved Organic Nitrogen as N 0.5 mg/l
- Dissolved Phosphorus as P 0.1 mg/l
- Dissolved Iron as Fe 0.5 mg/l
- Grease and Oil 2.0 mg/l
- Suspended Sediment 250 mg/l

Chapter 81 also contains objectives for groundwater quality and states that waters infiltrated into soils shall not exceed the following maximum constituent level:

- Total Nitrogen as N 5 mg/l
- Total Phosphate as P 1 mg/l
- Iron as Fe 4 mg/l
- Turbidity 200 NTU
- Grease and Oil 40 mg/l

For Caltrans projects, a MOU between TRPA and the LRWQCB acknowledges that LRWQBC is the lead regulatory agency for water quality in the region. LRWQBC water quality thresholds can be found in the Basin Plan. The LRWQBC numeric effluent limits for runoff discharged to infiltration systems are different from TRPA Threshold WQ-6. The LRWQCB has total phosphorus objectives set at 0.15 mg/l and a total nitrogen objective of 0.008 mg/L for Lake Tahoe. Both of these objectives are more conservative than TRPA objectives. The LRWQBC numeric effluent limits for surface discharges are similar to TRPA Threshold WQ-5, but this would be an inaccurate comparison of total to dissolved (although WQ-5 is the same for turbidity, grease, and oil).

3.13.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

Impact WQ-1: Substantial Alteration in the Quality of Surface Runoff

Alternative 1

Implementation of the no-build alternative would result in no change to the current conditions. As a result, the outdated drainage facilities would remain the same and overtopping of the road would continue to occur which would continue to increase the transport of roadway contaminant loading during the storm season.

Alternatives 2–4

Short-term effects to water quality could occur during construction activities.

Construction activities associated with the proposed action will not result in the physical alteration of the course of any annual or perennial creeks, streams, or streambeds present in the action area because construction activities will stay within the existing ROW. In addition, concentrations of TOC, TSS, turbidity, dissolved oxygen (DO), and nutrients such as nitrogen and phosphorus in creeks and groundwater would not be affected substantially by construction activities as streambeds will not be physically altered or moved. However, construction activities could result in short-term elevated nutrient loads from the erosion of disturbed soils during construction could occur if precipitation events would occur simultaneously with construction activities. In addition, spills of

hazardous, toxic, or petroleum substances during construction activities could result in temporary effects to water quality. Mitigation has been identified to reduce the severity of this effect (Mitigation Measures WQ-1 and WQ-2).

Implementation of Alternatives 2–4 would result in various improvements to the drainage, collection, conveyance, and treatment facilities that would ultimately improve water quality in the long term. As indicated in *Chapter 2, Alternatives*, and Figure 3.13-2, drainage, collection, conveyance, and treatment improvements will be implemented as part of the proposed WIP to improve water quality in the Kings Beach region and action area. These design features will help to collect, convey, and treat water runoff from on-street parking sites implemented as part of the proposed action and as well as runoff flowing into the action area from areas upstream of the action area. Moreover, as indicated in Chapter 2, the proposed action drainage, collection, conveyance, and treatment facilities that tie into and interface with the proposed WIP improvements would improve the quality of the surface runoff through the action area. In addition, all off-street parking lots would be designed with water collection and infiltration features to contain runoff on-site for a 20-year, 1-hour storm flow. These water collection and infiltration features will be incorporated into the off-site parking lots and are designed to mitigate runoff associated with the additional hard coverage from the parking lots. Because water would be contained entirely on-site, the off-site lots would not worsen water quality in the region. Consequently, implementation of the proposed action would result in long-term benefits to the quality of surface runoff due to these improved drainage, collection, conveyance, and treatment facilities. As indicated in *Section 3.11*, proposed action drainage improvements will be implemented as part of the proposed action. However, the proposed WIP improvements will be implemented in phases likely as separate projects with priority given to areas of the project watershed having the poorest drainage conditions.

Impact WQ-2: Substantial Degradation of Water Quality or Violation of any Water Quality Standards or Waste Discharge Requirements

Alternative 1

Implementation of the no-build alternative would not substantially degrade water quality to a point of violating any water quality standards or waste discharge requirements.

Alternatives 2–4

Construction activities associated with Alternatives 2–4 are not anticipated to violate or cause a violation of federal, state, or local water quality standards. Proposed construction activities do not involve treating, altering, or discharging materials from construction activities to streams or water bodies. All construction related materials will be held on-site, and construction activities are not expected to occur during the storm season. There would not be any adverse effects, and no mitigation required. Furthermore, Mitigation Measures WQ-1 and WQ-2 would further reduce the severity of this impact.

As indicated above, implementation of Alternatives 2–4 would result in various improvements to the drainage, collection, conveyance, and treatment facilities that would ultimately improve water quality in the long term, and these improvements would not degrade water quality result in a violation of any water quality standards or waste discharge requirements.

Impact WQ-3: Substantial Alterations of the Existing Drainage Pattern of the Site Area Such That Flood Risk and/or Erosion and Siltation Potential Would Increase

Alternative 1

Implementation of the no-build alternative would result in no change to the current conditions. As a result, the outdated drainage facilities would remain the same and overtopping of the road would occur, which would continue to increase the transport of sediment loading during the storm season.

Alternatives 2–4

Construction of the Alternatives 2-4 could result in short-term erosion and siltation effects. Mitigation has been identified to reduce the severity of this effect (Mitigation Measures WQ-1 and WQ-2).

As indicated in *Chapter 2, Alternatives*, implementation of Alternatives 2–4 would result in various improvements to the current drainage facilities. As a result, the outdated drainage facilities would be improved to handle greater stormwater flows. It is anticipated that these drainage improvements would prevent overtopping of SR 28 at all culverts, crossings, and drainage facilities affected by the proposed action, which would decrease the possibility to transport sediment to the lake. In addition, drainage, collection, conveyance, and treatment improvements will be implemented as part of the proposed WIP to improve water quality in the Kings Beach region and action area. These design features will help to collect, convey, and treat water runoff from the action area, and would result in long-term benefits to the quality of surface runoff due to these improved drainage, collection, conveyance, and treatment facilities.

Impact WQ-4: Substantial Reduction in Groundwater Quantity or Quality

Alternative 1

Implementation of the no-build alternative would not result in the reduction of groundwater quantity or quality. The current enforcement maintains maximum concentrations in groundwater of dissolved inorganic nitrogen, dissolved phosphorus, and dissolved iron and attains the 90th percentile value for suspended sediment concentration of 60 mg/L.

Alternatives 2–4

Implementation of Alternatives 2–4 would not result in the reduction of groundwater quantity or quality.

3.13.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Mitigation Measure WQ-1: Implement Construction BMPs Contained in the SWPPP

To reduce or eliminate construction-related water quality effects before onset of any construction activities, Placer County will require that project contractors obtain coverage under the NPDES General Construction Permit. Placer County will be responsible for ensuring that construction activities comply with the conditions in this permit, which will require development of a SWPPP, implementation of BMPs identified in the SWPPP, and monitoring to ensure that effects on water quality are minimized.

All projects in the Lake Tahoe Basin are required to implement BMPs to protect water quality from impacts related to temporary construction activities and permanent site improvements. BMP guidance issued by regulatory agencies include the following:

- TRPA's *Handbook of Best Management Practices* (1988);
- TRPA Best Management Practices Retrofit Program;
- TRPA Erosion Control Team's general information;
- BMP Contractors Notes (Tahoe Regional Planning Agency 2005);
- TRPA guidance for BMP installation developed to incorporate advancing technology; and
- Nevada Department of Transportation *Storm Water Quality Manuals: Construction Site BMPs Manual* (Nevada Department of Transportation 2004).

As part of this process, Placer County will require the implementation of multiple erosion and sediment control BMPs in areas with potential to drain to Lake Tahoe. These BMPs will be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. BMPs to

be implemented as part of this mitigation measure may include, but are not limited to, the measures below.

- Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, checkdams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.
- Drainage facilities in downstream off-site areas will be protected from sediment using BMPs acceptable to the Placer County, the RWQCB, and TRPA.
- Grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.

In addition, construction-related BMPs should be used to minimize the mobilization of sediment from construction activities. The following erosion and sediment control measures, which are based on standard measures and standard dust-reduction measures, will be included in the SWPPP, which is to be included in the construction specifications and project performance specifications.

- Cover or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways.
- Contain soil and filter runoff from disturbed areas by berms, vegetated swales, silt fencing, straw wattle, plastic sheeting, catch basins, infiltration basins, or other means necessary to prevent the escape of sediment from the disturbed area.

- Refrain from depositing or placing earth or organic material where it may be directly carried into a stream, marsh, slough, lagoon, or body of standing water.
- Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, or gutters: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, asphalt and concrete saw slurry, and heavily chlorinated water.
- Employ temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) to control erosion from disturbed areas.

TRPA requires that projects address water quality by reducing the projected level of contaminant loading. Untreated urban runoff from parking lots and roads does not typically meet the numeric standards for discharge to surface water. The following contaminant types and associated sources are being considered during project design and construction.

- **Sediment-related issues:** sediment generated from erosion during storm events and from increased flow attributable to impermeable surfaces; sediment generated during construction.
- **Nutrient-related issues:** nutrients transported with sediment, atmospheric deposition, organic matter (leaves, grass clippings), and landscape fertilizer.
- **Trash-related issues:** debris from construction and debris deposited by facility users.
- **Oil- and-grease-related issues:** oil and grease deposited by vehicles present on site during construction and facility use.

- **Toxic contaminant–related issues:** concrete-washing during construction, paving during construction (loose gravels, sealants), materials used in structures (paint, wood preservatives), and landscape pesticides.

To address the potential generation of contaminated stormwater discharges, temporary BMPs are shall be applied during and immediately after the construction period. The conscientious application and maintenance of temporary BMPs can protect water quality during construction periods. The minimum temporary BMPs needed to be consistent with the TRPA and Caltrans guidance documents referenced above and to satisfy TRPA Code requirements (Chapters 25, 64, and 81) are outlined in Table 3.13-3.

Table 3.13-3. Temporary Best Management Practices

<u>Temporary Construction Site Practices (BMP-TCS)</u>	<u>Temporary Soil Stabilization Practices (BMP-TSS)</u>
Development site plan (BMP-1)	(nonvegetative)
Grading season (BMP-2)	Straw mulch (BMP-15)
Boundary fencing (BMP-4)	Hydromulch (BMP-16)
Stabilized construction entrance (BMP-6)	Pine needle mulch (BMP-17)
Protection of trees and other vegetation (BMP-8)	Jute netting (BMP-18)
<u>Temporary Sediment Barriers (BMP-TSB)</u>	Plastic netting (BMP-19)
Straw bale sediment barriers (BMP-9)	Wood excelsior blanket (BMP-20)
Filter fencing (BMP 10)	Erosion control blankets or geotextiles (BMP-21)
Straw bale drop inlet sediment barrier (BMP-11)	Chemical mulches and tackifiers (BMP-22)
Sandbag curb inlet sediment barrier (BMP-12)	<u>Temporary Runoff Control on Slopes (BMP-TD)</u>
Filter berm (BMP-13)	Diversion dike (BMP-23)
Siltation berm (BMP-14)	Interceptor swale (BMP-28)
<u>Temporary and/or Permanent Sediment Retention Structures</u>	Diversion swale (BMP-24) - Interception dike (BMP-27)
Sediment trap (BMP-33)	
Source: Tahoe Regional Planning Agency 1988.	

Final selection of BMPs will be subject to review by Placer County. Placer County will verify that an NOI and a SWPPP have been filed before allowing construction to begin. Placer County or its contractor will perform routine inspections of the construction area to verify that the BMPs specified in the SWPPP are properly implemented and maintained. Placer County will notify contractors immediately if there is a noncompliance issue and will require compliance.

Mitigation Measure WQ-2: Implement a Spill Prevention and Control Program

Placer County will require contractors to develop and implement a spill prevention and control program to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during construction activities. The program will be completed before any construction activities begin. This plan will be a part or section of the SWPPP required for the proposed action as the SWPPP addresses non-stormwater releases.

Placer County will review and approve the spill prevention and control program before onset of construction activities. Placer County will routinely inspect the construction area to verify that the measures specified in the spill prevention and control program are properly implemented and maintained. Placer County will notify contractors immediately if there is a noncompliance issue and will require compliance.

The federal reportable spill quantity for petroleum products, as defined in the EPA's CFR (40 CFR 110) is any oil spill that (1) violates applicable water quality standards, (2) causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or (3) causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

If an appreciable spill has occurred and is reportable, the contractor's superintendent will notify Placer County and the county will need to take action

to contact the appropriate safety and clean-up crews to ensure the spill prevention plan is followed. A written description of reportable releases must be submitted to the RWQCB and TRPA. This submittal must include a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases would be documented on a spill report form. If the results determine that project activities have adversely affected surface water or groundwater quality, a detailed analysis will be performed by a registered environmental assessor to identify the likely cause of contamination. This analysis will conform to American Society for Testing and Materials standards and will include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, Placer County and its contractors will select and implement measures to control contamination, with a performance standard that surface water quality groundwater quality must be returned to baseline conditions. These measures will be subject to approval by Placer County.

3.13.5 Compliance with Tahoe Regional Planning Agency Code

The proposed action alone is expected to benefit the water quality threshold significantly through various drainage conveyance upgrades and stormwater treatment facilities deployed as part of the proposed action. Newly installed drainage facilities will capture many pollutants before they enter the lake. These improvements will greatly outweigh any negative impacts associated with newly created impervious surfaces. No adverse effects are anticipated.

3.14 Growth-Inducing Impacts

3.14.1 Affected Environment

Growth rates and patterns are influenced by various local, regional, and national forces that reflect ongoing social, economic, and technological changes. Ultimately, the amount and location of population growth and economic development that occur in a specific area are controlled, to some extent, by local and county governments through zoning, land use plans and policies, and decisions regarding development applications. Local government and other regional, state, and federal agencies also make decisions about infrastructure (such as roads, water facilities, and sewer facilities) that may influence growth rates and the location of future development.

Transportation is one component of the overall infrastructure that may serve to accommodate planned growth. This infrastructure may also serve to hasten or shift planned growth or encourage and intensify unplanned growth in an area. Transportation projects may induce growth when they directly or indirectly promote, hasten, shift, or intensify planned growth or encourage unplanned growth in a community or region. Examples of growth-inducing transportation projects include construction of a new interchange on an existing freeway, which could shift and encourage growth in the vicinity of the new interchange, or construction of a new roadway through an undeveloped area, which could promote unplanned growth.

3.14.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

Through the Regional Plan's Goals and Policies, the TRPA directs the amount and location of the new land uses in conformance with the environmental threshold carrying capacities and the other goals of the Tahoe Regional Planning Compact. Specific land use policies are implemented through the use of PASS. In commercial areas, Community Plans have been developed to provide more detailed developmental guidance.

3.14.2.1 Federal Policies and Regulations

The CEQ regulations, which implement the NEPA of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, *40 CFR 1508.8*, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

3.14.2.2 State Policies and Regulations

CEQA also requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

3.14.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

Impact GI-1: Induce Substantial Population Growth, Either Directly or Indirectly

Alternative 1

Alternative 1 is the no-build alternative, and it is assumed that the existing conditions would persist under this alternative and that the proposed action would not be constructed. Growth, temporary or permanent, is not associated with this alternative.

Alternatives 2, 3, and 4

Because Alternatives 2, 3, and 4 do not create new roadways or increase capacity on existing roadways, none of these alternatives would induce growth through either hastening planned growth or promoting unplanned growth.

TRPA regulates the rate and distribution of additional public service development. The Tahoe Regional Planning Compact provides goals for development within the Tahoe Basin, while PASs and Community Plans provide specific land use policies. PASs set limits on parcel densities and recreational development. In order for a project to receive approval for additional growth, it must meet the policies set within the Community Plan and PASs that apply to the project's particular type of development. None of the build alternatives would have a direct or indirect effect on the rate of development.

3.14.4 Mitigation, Avoidance, Minimization, and Compensation Measures

Project improvements are not anticipated to have a direct or indirect effect on the rate of development. Any unplanned growth that may occur would involve environmental documentation, public notification and involvement, mitigation requirements, and approval by local agencies. Therefore, no specific measures related to growth are proposed for the action.

3.14.5 Compliance with Tahoe Regional Planning Agency Code

TRPA Resolution No. 82-11, adopted August 1982, outlined the environmental threshold carrying capacities for the Lake Tahoe region. The *environmental threshold carrying capacity* is defined as:

an environmental standard necessary to maintain significant scenic, recreational, educational, scientific, or natural value of the region or to maintain public health and safety within the region.

The thresholds set forth in Resolution 82-11 address the following nine components of the environment of the Tahoe region: water quality, soil conservation, air quality, vegetation preservation, wildlife, fisheries, noise, recreation, and scenic resources. As such, TRPA does not specifically include criteria for determining significance for growth.

3.15 Visual Resources

This section identifies and evaluates issues related to visual resources in the action area.

3.15.1 Affected Environment

The *Affected Environment* discussion below describes the current setting of the action area. The purpose of this information is to establish the existing environmental context, or background, against which the reader can then understand the environmental changes caused by the proposed action. The environmental setting information is intended to be directly or indirectly relevant to the subsequent discussion of environmental effects. For example, the setting identifies groups of people who have views of the action area because the action could change their views and experiences.

The environmental changes associated with the action are discussed under *Environmental Consequences*. This section identifies impacts, describes how they would occur, and prescribes mitigation measures to minimize adverse effects.

3.15.1.1 Concepts and Terminology

Visual Character

Both natural and artificial landscape features make up the *character* of a view. Character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include those associated with landscape settlement and development, such as roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly seasonally and even hourly as weather, light, shadow, and the elements that compose the viewshed change. Form, line, color, and texture are the basic components used to describe visual character and quality for most visual assessments (U.S. Forest Service 1974; Federal Highway Administration 1983). The appearance of the landscape is described in terms of the dominance of each of these components.

Visual Quality

Visual quality is evaluated using the well-established approach to visual analysis adopted by the FHWA, employing the concepts of vividness, intactness, and unity (Jones et al. 1975; Federal Highway Administration 1983), as defined below.

- *Vividness* is the visual power or memorability of landscape components as they combine in striking or distinctive visual patterns.
- *Intactness* is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, as well as in natural settings.
- *Unity* is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the artificial landscape.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by its visual sensitivity. High-quality views are highly vivid and relatively intact, exhibiting a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Visual Sensitivity and Viewer Response

The measure of the quality of a view must be tempered by the overall *sensitivity* of the viewer. Viewer sensitivity is based on the visibility of resources in the landscape, the proximity of viewers to the visual resource, the elevation of viewers relative to the visual resource, the frequency and duration of viewing, the number of viewers, and the type and expectations of individuals and viewer groups.

The criteria for identifying importance of views are related in part to the position of the viewer relative to the resource. A *viewshed* is defined as the total visible area from a single observer position, or the total visible area from multiple observer positions. Viewsheds are accumulated seen-areas from highways, trails, campgrounds, towns, cities,

or other viewer locations. To identify the importance of views of a resource, a viewshed may be broken into distance zones of foreground, middleground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer. Although distance zones in viewsheds may vary between different geographic regions or types of terrain, a commonly used set of criteria identifies the *foreground* zone as up to 0.5 mile from the viewer, the *middleground* zone as extending up to 4 miles from the foreground, and the *background* zone as extending 4 miles from the viewer to the horizon (U.S. Forest Service 1995).

Judgments of visual quality and viewer response must be made based in a regional frame of reference (Soil Conservation Service 1978). The same type of visual resource in different geographic areas could have a different degree of visual quality and sensitivity in each setting. For example, a small hill may be a significant visual element in a flat landscape but have very little significance in mountainous terrain.

Generally, visual sensitivity is higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work (U.S. Forest Service 1974; Soil Conservation Service 1978; Federal Highway Administration 1983). Commuters and nonrecreational travelers generally have fleeting views and tend to focus on commute traffic, not on surrounding scenery; thus, they are generally considered to have low visual sensitivity. Residential viewers typically have extended viewing periods and are concerned about changes in the views from their homes; therefore, they generally are considered to have moderate to high visual sensitivity. Viewers using recreation trails and areas, scenic highways, and scenic overlooks are usually assessed as having high visual sensitivity.

3.15.1.2 Environmental Setting

Regional Character

The project site is located along SR 28 and is the main thoroughfare in the City of Kings Beach in eastern Placer County, California (see Figure 3.15-1). In relation to nearby cities, the site is approximately 23 miles southwest of Reno, 8 miles west of Incline Village, 14 miles northwest of Carson City (Nevada's capitol), 20 miles north of South Lake Tahoe, 8 miles northeast of Tahoe City, 1.3 miles east of Tahoe Vista, and 11 miles southeast of Truckee. The project region, as discussed in this section, is considered the area within a 30-mile radius of the project location. The scenic beauty of glacier-carved Lake Tahoe and the surrounding Sierra Nevadas dominates the region. The region attracts recreationists who ski, hike, bike, golf, camp, boat, and fish in and around the snow-capped peaks surrounding the lake. The California-Nevada border roughly divides the eastern third of lake. East of that border, gamblers visit hotel-casinos in and around Reno northeast of the site, across the border along SR 28 within 1.25 miles southeast of the site, and south of the site in South Lake Tahoe. This wide array of visitors makes the region a tourist destination.

Although growth in the region is limited by the steep terrain of the Sierra Nevadas as well as water bodies and public parks, development continues to pressure rural areas such as scrub land and pastureland, especially north and south of Reno. Reno has also experienced a central revitalization along the Truckee River running through the downtown. Smaller towns and cities surrounding Lake Tahoe also experience similar pressures of growth. This is changing the visual character from rural to suburban in some areas and from urban sprawl to denser urban centers in other areas.

Reno is in high desert, but the Sierra Nevadas and the area immediately surrounding the action area are surrounded by more alpine tree cover. The dominant plant community in the general action area consists of upper montane coniferous forest. Water features in the greater region include Washoe Lake, Lake Tahoe, Loon Lake, Hell Hole Reservoir, French Meadows Reservoir, Donner Lake, Boca Reservoir, Truckee River, and Carson

River. The region has various urban and suburban areas amid pleasing scenic views as well as more natural environments surrounding Lake Tahoe. Because of the diversity of topography, vastness and clarity of the lake, and expanses of forested slopes, the visual quality of the project region is very high in vividness; however, intactness and unity are considered to be moderately high to high based on the visibility of developed features and infrastructure.

Action Area Character

For the purposes of this analysis, the project vicinity is defined as the area within 0.5 mile of the project site. The project site is characterized primarily by commercial properties with some views of the lake along SR 28 in Kings Beach between SR 267 and Chipmunk Street. Representative key viewpoints are shown in Figure 3.15-2 and the site photographs in Figures 3.15-3 through 3.15-14. The highway is currently a four-lane road with no turning lane, with street parking on the north and south sides. There is minimal striping for pedestrian crossings at most intersections. Traffic signals are currently only at the intersection of Coon Street and SR 28 and the intersection of SR 28 and SR 267.

North of the Project Site

North of the project site is a grid of Kings Beach residences and some public buildings such as a library and elementary school. The neighborhood has dense mature coniferous and deciduous trees interspersed with power lines. Most neighborhood roads lack curbs and slope directly into simple dirt-covered properties that range from moderately low to moderately high visual quality (see Figure 3.15-3, Viewpoints 1 and 2; Figure 3.15-4, Viewpoint 3).

East of the Project Site

A steep ridgeline marks the east end of Kings Beach (see Figure 3.15-4, Viewpoint 4). Single-family residences line either side of Beaver Street, Bend Avenue, and Park Lane north of SR 28. Views become much more natural at the eastern end of the project vicinity along SR 28, curving around the ridgeline to the southeast (see Figure 3.15-5,

Viewpoint 5). Although power lines are visible on the north side of the highway, scenic views of Lake Tahoe are readily apparent over the wood and brown metal guardrail south of the highway. Single-family residences and condominiums are perched out of site down the hill toward Lake Tahoe south of SR 28. The visual quality east of the project site is moderate to moderately high.

South of the Project Site

The vicinity south of SR 28 along the eastern side of the project site includes single-family and condominium residences on either side of Brockway Springs Drive, which are directly behind the commercial structures along SR 28. Some mature coniferous and deciduous trees can be seen on the eastern end of Brockway Springs Drive, while more dense foliage surrounds the residences on the western end. Several of these residences south of the street have direct private beach access. Farther west and south of SR 28, about mid-way along the project site, is the Coon Street Boat Launch and the Kings Beach State Recreation Area stretching close to a quarter mile. Farther west and south of SR 28, Brockway Vista provides access to lakefront properties behind the commercial properties along SR 28. Farther west, running north to south and paralleling Secline Street is Griff Creek, which empties into Lake Tahoe at a small public park. Farther west and immediately south of the intersection of SR 28 and SR 267 is Secline Beach with the Sweetbriar condominiums along the highway. The visual quality south of the project site varies from moderate to moderately high.

West of the Project Site

The properties farther west and south of SR 28 within the vicinity of the project site are primarily condominiums with access to Lake Tahoe. On the west edge of the project vicinity, Snow Creek runs north to south, emptying into Lake Tahoe. The area north of SR 28 around Snow Creek and farther east appears relatively unspoiled with a mixture of tall, mature evergreen and deciduous trees but also flanked by wooden power lines and basic shoulder treatment along the highway. Generally northwest of the intersection of Highways 28 and 267 are a few commercial properties including a Safeway grocery

store, with the Old Brockway Golf Course primarily visible along both highways within the project vicinity. The golf course surrounds several dozen single-family residences directly north of the golf course clubhouse. The visual quality west of the project site varies from moderate to moderately high.

Project Vicinity Visual Quality

Overall, the project vicinity includes some moderately high vivid scenic views as well as vivid commercial and residential elements, while the intactness and unity of the overall quality throughout the vicinity is moderate. Therefore, the overall visual quality is moderate to moderately high.

3.15.1.3 Study Area Units and Key Viewpoints

The area surrounding and including the action area has been analyzed using the TRPA unit system to provide a framework for analysis. The units are shown in Figure 3.15-15. Key viewpoints, shown in Figure 3.15-2, have been chosen for their representation of the unit within which they are located and those viewers affected.

Roadway Unit 20B—Kings Beach

Roadway Unit 20B extends along SR 28 from Beach Street on the west, to the portion of Chipmunk Street south of SR 28 on the east. Six key viewpoints in Unit 20B, spatially located in Figure 3.15-2, are shown in Figures 3.15-9 through 3.15-14. Viewers in this unit are business owners, residents, travelers on SR 28, and recreationists.

The four-lane SR 28 gently curves through Kings Beach and is bounded on either side by tall, relatively dense mature coniferous and deciduous trees with a few smaller ornamental trees and herbaceous vegetation. Lining the highway are primarily tourist-based commercial businesses such as motels and lodges, restaurants, gift shops, gas stations, and recreation craft rentals with a few condominiums and private single-family residences also facing the highway.

Power lines are not visible throughout this roadway unit. Fencing along the roadway includes split wood, chain link, and some wood board, and also includes a few stone,

concrete, and brick elements. Business signs are of various types including wooden, neon, and light-behind plastic. Various building materials in use include wood panel and wood siding of various types and colors, concrete block, painted brick, stone façade, glass and steel, and stucco. At least one prominent building north of the highway, located on the east end of the roadway unit, appears to be under construction or renovation.

Curbs, gutters, sidewalks, landscaping, and directed lighting are largely absent with the exception of the ROW of the Safeway grocery store northwest of the intersection of SR 28 and 267 and the Kings Beach SRA south of SR 28 roughly in the middle of Unit 20B. The existing roadway shoulder treatment is inconsistent, which creates uncertainty and distractions for motorists. Some light fixtures in these two areas are of matching design and integrate well with the existing architectural site features (see Figure 3.15-5, Viewpoint 6 and Figure 3.15-12, Viewpoint 15W). Standard galvanized steel streetlights currently light the highway and intersections (see Figure 3.15-11, Viewpoint 14E or 15E).

Views of Lake Tahoe are especially apparent, though somewhat blocked by street parking, across Kings Beach State Recreation Area near the middle of Unit 20B. Middleground and background views of the distant ridgelines are apparent at the east and west ends of the highway viewshed. With the exception of these middleground and background views, viewing distance is limited to the foreground by vegetation and the winding nature of the roadway.

The existing travel route rating and scenic quality rating of this unit is summarized in Tables 3.15-1 and 3.15-2, respectively.

Roadway Unit 40—Brockway Cutoff

Roadway Unit 40 extends along SR 267 from the intersection with SR 28 at the south end to the intersection with Cambridge Drive to the north. Viewers in this unit include residents, travelers on SR 267, and recreationists.

Dense, mature coniferous trees are especially prominent in this unit surrounding residences on either side of the roadway. Power lines are prominent at the north end of this unit (see Figure 3.15-6, Viewpoint 7) but are no longer visible at the point where the highway meets the Old Brockway Golf Course (see Figure 3.15-6, Viewpoint 8). The Old Brockway Golf Course borders the west side of the southern two-thirds of this roadway unit (see Figure 3.15-7, Viewpoint 9). Shorter mature deciduous trees primarily line this area along a split wood fence. On a clear day, Mount Tallac can be seen briefly in the background between these trees (see Figure 3.15-7, Viewpoint 10 and Figure 3.15-8, Viewpoint 11).

The two-lane highway has a shoulder that is a few feet wide but has no curbs, gutters, or sidewalks. The residences along the highway were built using wood and concrete with wood, metal, and asphalt shingle roofing. Lake Tahoe can be seen between the condominiums and the trees from SR 267 at the intersection with SR 28, but middleground and background views are limited by vegetation and the winding nature of the roadway (see Figure 3.15-7, Viewpoint 10).

The existing travel route rating and scenic quality rating of this unit is summarized in Tables 3.15-1 and 3.15-2, respectively.

Shoreline Unit 21—Agate Bay

Shoreline Unit 21 extends from the western end of Tahoe Vista approximately to Coon Street in Kings Beach. Viewers in this unit are residents, businesses, and recreationists.

This sandy shoreline includes several single-family residences and condominiums, several piers, a small marina, and public beach access. Views from the lake are of shoreline buildings with various materials and colors, mixed with mature coniferous vegetation leading to mountain peaks in the background. Recreationists are common on the shore or in boats. Nighttime views of the shore from the lake are primarily spotted with low-intensity residence lighting.

The existing travel route rating and scenic quality rating of this unit is summarized in Tables 3.15-1 and 3.15-2, respectively.

Shoreline Unit 22—Brockway

Shoreline Unit 22 extends from Coon Street through Brockway on the east side of the Nevada-California state line. Viewers in this unit are residents, businesses, and recreationists.

This shoreline unit is primarily characterized by residences with private beach access and several piers. The shoreline wraps around Lake Tahoe's northernmost peninsula. Views from the lake include mature coniferous vegetation with the peninsula's ridgeline in the middleground and the often snow-capped mountain peaks in the background. Especially from the tip of the peninsula to the east end of Unit 22, the shore is generally more steep and rocky than some of the more gradual sandy beaches west of this unit. Nighttime views of the shore from the lake are primarily spotted with low-intensity residence lighting.

The existing travel route rating and scenic quality rating of this unit is summarized in Tables 3.15-1 and 3.15-2, respectively.

Recreation Unit 9—Kings Beach

Recreation Unit 9 represents the Kings Beach State Recreation Area, which includes 1,400 linear feet of beach with a pier, picnic area, boat launch, restrooms, parking facilities, and the North Tahoe Conference Center. Viewers in this unit are primarily recreationists (see Figure 3.15-12, Viewpoint 15W).

Recreationists in the water can see Mount Baldy and other surrounding ridgelines in the background. Recreationists on the beach can also see through the mature coniferous and deciduous vegetation interspersed throughout the area to the businesses on the north side of SR 28. The parking area between the beach and SR 28 has well-defined brick-paved walkways, split wood fencing, low stone walls, large landscape rocks, telephone pole-sized wood landscape barriers, and low herbaceous landscape vegetation. The restroom design blends well with the regional character.

The tall parking lot lighting is directed downward while the walkways are lit with shorter light fixtures that integrate well with the existing architectural site features.

The existing travel route rating and scenic quality rating of this unit is summarized in Tables 3.15-1 and 3.15-2, respectively.

Table 3.15-1. 2001 Travel Route Ratings and Comments

	2001 Travel Route Rating	2001 Rating Comments
Roadway Units		
20B—Kings Beach	12.5	This unit extends approximately 1.2 miles from Beach Street to lakeside part of Chipmunk Dr. Improvements noted since 1996 include remodeling a Safeway, landscaping and structure upgrade at the golf course, and the California Tahoe Conservancy removal of fence and spa building at North Tahoe Beach Center site. Some sign and facade improvements have also occurred in Kings Beach. The new fish mural is an improvement to a large blank wall without creating distraction from natural setting. This unit is not in threshold attainment.
40—Brockway Cutoff	15	The focused lake view down the golf course has been degraded through addition and maturation of landscaping on the fairway and placement of new cafe/pro shop structure, even though the terminus of the view at the lake has improved with removal of structure and fence at Tahoe Beach Center site. The golf course cafe/pro shop displays improved architectural features compared to the previous structure yet is more visible from this unit. Over time, required landscaping mitigation will likely allow an improvement in the man-made features score. This unit is not in threshold attainment.
Shoreline Units		
21—Agate Bay	8	The low man-made features rating reflects, in part, the number of boats and beach equipment clutter found along the beach throughout this unit. Several residential rebuilds include poor setback and screening characteristics. Two tourist accommodation upgrade projects fail to make scenic improvements. This unit remains at risk.
22—Brockway	9	New medium large houses with inadequate screening and large window area reduce the manmade features score. The reduction in variety reflects an amendment in previous scores and the loss of some native shoreline vegetation. This unit is not in threshold attainment and is at risk.
Recreation Area		
9—Kings Beach	NA	

Source: Tahoe Regional Planning Agency 2002.

Table 3.15-2. 2001 Scenic Quality Ratings and Comments

	2001 Scenic Quality Rating	2001 Rating Comments
Roadway Units		
20B—Kings Beach	9	A short lake view at the base of SR 267 has opened through CTC removal of a structure and view-blocking fence. A framed view of Mt. Tallac is offered, blocked in some areas with residual nonnative vegetation.
40—Brockway Cutoff	8	The addition of landscaping along the fairway blocks this targeted view. In addition, construction of the relocated café/pro shop at the golf course narrows the frame of the view and changes its character.
Shoreline Units		
21—Agate Bay	8	NA
22—Brockway	9	NA
Recreation Area		
9—Kings Beach	12	The distractions of poorly maintained commercial buildings to the north have been removed by the CTC park project. Commercial development across the highway and the roadway itself has become visible in this area, however, precluding an increase in the Intactness score. As vegetation matures, Intactness will probably improve.
Source: Tahoe Regional Planning Agency 2002.		

3.15.1.4 Viewer Groups and Viewer Responses

Viewer groups in the vicinity of the action area and their sensitivity to visual changes in the area are characterized below.

Residents

Approximately four single-family residences (see Figure 3.15-13, Viewpoint 16W for an example), two residence/businesses, two multifamily residences, and one area with several condominiums and timeshares (see Figure 3.15-7, Viewpoint 10 for an example) border directly onto SR 28 in the action area. These residences have direct views of the project site either across open driveways or through existing vegetation and will likely be most affected by the proposed action.

Residents are likely to have moderately high sensitivity to visual changes due to close proximity to the project site and a high sense of ownership over views from their residences.

Recreational Users

Recreational users who would view the proposed action are more likely to seek the action area for its unique visual qualities and regard the natural and built surroundings as a holistic visual experience. Recreational users include miniature golfers, visitors to the Kings Beach State Recreation Area, boaters at the adjoining boat launch, and watercraft renters, as well as tourist patrons of various Kings Beach gift shops, restaurants, and motels, lodges, and cottages.

Recreational users seeking more active activities such as miniature golf or water sports are likely to be more transitory, distant from the project site, and focused on the particular activity, while tourist patrons are likely to walk, eat, and shop along the project site and be more affected by the proposed action. Therefore, recreational users are likely to have moderate to moderately high sensitivity to visual changes at the project site.

Businesses

The project site is primarily lined by businesses directly facing SR 28. These businesses depend largely upon tourism, and tourists visit the area largely because of its scenic quality. Hence, the proposed action's cumulative effect upon the area's scenic quality is likely to directly affect businesses.

Due to their direct relationship to the project site's scenic quality, businesses within view of the project site are likely to have moderately high sensitivity to visual changes.

Roadway Travelers

Travelers use roadways at varying speeds, and normal highway and roadway speeds differ based on the traveler's familiarity with the route and roadway conditions (i.e., presence or absence of rain or snow). The posted speed limit within the project site is 30 mph. Views on the western half of the project site are shorter in duration and

distance due to the slightly higher amount of activity and the gradual curve in the roadway while views in the eastern half are slightly more expansive on the straighter stretch of highway.

Motorists traveling along SR 28 include area residents, commuters, tourists, and park users from the region and elsewhere. Viewers such as residents and commuters who frequently travel these routes generally possess moderate visual sensitivity to their surroundings. The passing landscape becomes familiar to these viewers, and their attention typically is not focused on the passing views but on the roadway, roadway signs, surrounding traffic, and pedestrian activity. Viewers who travel local routes for their scenic quality generally possess a higher visual sensitivity to their surroundings because they are likely to respond to the natural environment with a high regard and as a holistic visual experience.

Viewer sensitivity is moderate among most roadway travelers anticipated to view the action area. The passing landscape becomes familiar to frequent viewers while tourists are likely to be more sensitive at standard roadway speeds. Furthermore, at these speeds, expansive views are of somewhat limited duration and roadway users are fleetingly aware of surrounding traffic, road signs, their immediate surroundings within the automobile, and other visual features.

3.15.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

3.15.2.1 Federal and State Regulations

NEPA establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings [42 U.S.C. 4331(b)(2)]. To further emphasize this point, the Federal Highway administration in its implementation of NEPA [23 U.S.C. 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of *aesthetic*, natural, scenic and historic environmental qualities” [PRCSection 21001(b)].

3.15.2.2 Local Regulations

Placer County

The Placer County General Plan Update (Placer County 1994) contains visual resource goals, objectives, and policies to preserve and enhance the scenic qualities of the Basin.

Land Use

- **Commercial Land Policy 1.D.11.** The County shall require that existing and new downtowns/village centers and development within them be designed to integrate open spaces into the urban fabric where possible, especially taking advantage of any natural amenities such as creeks, hillsides, and scenic views.
- **Visual and Scenic Resources Policy 1.K.1.** The County shall require that new development in scenic areas (e.g., river canyons, lake watersheds, scenic highway corridors, ridgelines and steep slopes) is planned and designed in a manner which employs design, construction, and maintenance techniques that:
 - Avoids locating structures along ridgelines and steep slopes;
 - Incorporates design and screening measures to minimize the visibility of structures and graded areas;
 - Maintains the character and visual quality of the area.
- **Visual and Scenic Resources Policy 1.K.2.** The County shall require that new development in scenic areas be designed to utilize natural landforms and vegetation for screening structures, access roads, building foundations, and cut and fill slopes.
- **Visual and Scenic Resources Policy 1.K.3.** The County shall require that new development in rural areas incorporate landscaping that provides a transition between the vegetation in developed areas and adjacent open space or undeveloped areas.
- **Visual and Scenic Resources Policy 1.K.4.** The County shall require that new development incorporates sound soil conservation practices and minimizes land alterations. Land alterations should comply with the following guidelines:

- Limit cuts and fills;
- Limit grading to the smallest practical area of land;
- Limit land exposure to the shortest practical amount of time;
- Replant graded areas to ensure establishment of plant cover before the next rainy season; and
- Create grading contours that blend with the natural contours on site or with contours on property immediately adjacent to the area of development.
- **Visual and Scenic Resources Policy 1.K.5.** The County shall require that new roads, parking, and utilities be designed to minimize visual impacts. Unless limited by geological or engineering constraints, utilities should be installed underground and roadways and parking areas should be designed to fit the natural terrain.
- **Scenic Routes Policy 1.L.3.** The County shall protect and enhance scenic corridors through such means as design review, sign control, undergrounding utilities, scenic setbacks, density limitations, planned unit developments, grading and tree removal standards, open space easements, and land conservation contracts.
- **Scenic Routes Policy 1.L.4.** The County shall provide for landscaping and/or landscaped mounding along designated scenic corridors where desirable to maintain and improve scenic qualities and screen unsightly views.
- **Scenic Routes Policy 1.L.5.** The County shall encourage the development of trails, picnicking, observation points, parks, and roadside rests along scenic highways.
- **Scenic Routes Policy 1.L.6.** The County shall protect and maintain historical landmarks and historical monuments along scenic routes.
- **Scenic Routes Policy 1.L.7.** The County shall encourage the use of bicycles as an alternative mode of travel for recreational purposes in scenic corridors.
- **Scenic Routes Policy 1.L.8.** The County shall include aesthetic design considerations in road construction, reconstruction, or maintenance for all scenic routes under County jurisdiction.
- **Scenic Routes Policy 1.L.9.** The County shall support anti-litter, beautification, and cleanup programs along scenic routes.

- **Scenic Routes Policy 1.L.10.** The County shall coordinate scenic route programs among local, regional, and state jurisdictions, recognizing that scenic routes are a resource of more than local importance.

Transportation and Circulation

- **Streets and Highways Policy 3.A7.** The County shall develop and manage its roadway system to maintain the following minimum LOS: LOS C on rural roadways, except within one-half mile of state highways where the standard shall be LOS D, and LOS C on urban/suburban roadways except within 0.5 mile of state highways where the standard shall be LOS D.

The County may allow exceptions to these LOS standards where it finds that the improvements or other measures required to achieve the LOS standards are unacceptable based on established criteria. In allowing any exception to the standards, the County shall consider the following factors:

The visual aesthetics of the required improvement and its impact on community identity and character.

Public Facilities and Services

- **General Public Facilities and Services Policy 4.A.4.** The County shall require proposed new development in identified underground conversion districts and along scenic corridors to underground utility lines on and adjacent to the site of proposed development or, when this is infeasible, to contribute funding for future undergrounding.

Natural Resources

- **Vegetation Policy 6.D.1.** The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually sensitive areas such as hillsides, ridges, and along important transportation corridors.
- **Vegetation Policy 6.D.10.** The County shall encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native wildlife, and ensure that a maximum number and variety of well-adapted plants are maintained. [In general, *native* means naturally occurring in the area, not introduced. Depending on the species, native plants can have widespread distribution across California or restricted distribution just in the Sierras or Tahoe Basin].
- **Open Space for the Preservation of Natural Resources Policy 6.E.3.** The County shall support the maintenance of open space and natural areas that are

interconnected and of sufficient size to protect biodiversity, accommodate wildlife movement, and sustain ecosystems.

In each case, compliance with the TRPA would achieve compliance with Placer County requirements.

Kings Beach Community Plan

The Kings Beach Community Plan (Placer County and Tahoe Regional Planning Agency 1996) contains specific visual resource goals, objectives, and policies that directly relate to the action area and serve to preserve and enhance the scenic qualities of the Tahoe Basin; these policies integrate with the policies of the Placer County General Plan. The following excerpt is from the Kings Beach Community Plan Introduction (Placer County Tahoe Regional Planning Agency, and North Tahoe Community Plan Team 2006):

Pursuant to Chapter 14 of the TRPA Code of Ordinances, the Kings Beach Community Plan supersedes certain plans and regulations established by the TRPA Plan Area Statements (PAS) and the TRPA Code for the area within the Community Plan boundaries. For purposes of Placer County land use regulation, the Community Plan and the Placer County General Plan and implementing ordinances shall become one and the same. Upon adoption, the Community Plan (CP) is intended to serve as the mutual plan for all regulatory authorities.

These policies apply to the proposed action, a number of which refer specifically to the TRPA.

Land Use Element

Planning Consideration 5

Scenic Roadway Unit 20 and Scenic Shoreline Unit 21 are within this plan area and the roadway unit is targeted for scenic restoration as required by the scenic threshold.

- **Urban Design and Development Policy 1a—Special Area 1 (Downtown Area Commercial).** Tourist-oriented commercial uses are the predominant theme. This area represents the heart of the downtown Kings Beach Community and generally fronts on SR 28. This area has historically had a wide range of commercial activities that have not always been compatible and have not always been appropriate for a tourist-oriented economy. The policy of this plan is to

keep the types of activities more homogeneous and oriented to the visiting public.

- **Urban Design and Development Policy 1b—Special Area 2 (East and West Entry Commercial Areas).** More emphasis is placed on commercial services oriented more to the local population, such as auto repair, building materials and hardware, laundries and dry cleaning, and storage yards. These areas are generally at the entrance points at either end of the commercial districts.
- **Urban Design and Development Policy 1c—Special Area 3 (Recreation Area).** Permissible uses are oriented toward outdoor recreation activities. This area is generally defined geographically on the state beach area and is bounded generally between SR 28 and the lake, in the middle of the downtown area. Limited commercial activity is permitted to reflect the historical relation between lakefront recreation and tourist-related commercial activities.
- **Urban Design and Development Policy 5a.** Pursuant to the general recommendations for scenic improvements in Chapter IV, all projects within the scenic corridor shall be responsible for removing, relocating, or screening overhead utilities as a condition of project approval. The TRPA may waive this requirement if the project is part of an undergrounding program or the undergrounding has been determined by the TRPA not to be necessary to meet the scenic targets of this plan.
- **Urban Design and Development Policy 7a.** The Design Review Committee shall consider the recommendations of the Scenic Target section of Chapter IV when reviewing projects and, where appropriate, incorporate conditions of approval to implement the recommendations of the Scenic Target section or the equal or superior recommendations of the applicant.
- **Urban Design and Development Policy 8a.** Projects located between the designated scenic corridors and Lake Tahoe shall not cause a reduction of the views of Lake Tahoe from the corridors. The TRPA may consider as an alternative, off-site improvements if it is determined there is a net increase in the lake views within the scenic unit.

Transportation/Control Program/Action Element

- **Streets and Highways Policy 1. SR 28 Improvements**—SR 28 will be improved to include four lanes (two in each direction with no center turn lane), Class II bikeways on each side, parallel parking in the pedestrian district, medians in the entry areas, curb, and sidewalks. The construction of the highway improvements will be in conjunction with the construction of sidewalks, curbs, drainage system, landscaping, utility undergrounding and lighting. Figure 3 (not shown) from the

TRPA Transportation/Control Program/Action Element summarizes the location of the improvements in concept.

- **Streets and Highways Policy 2. Local Street Improvements**—Local commercial streets shall be improved to include two travel lanes, parallel parking, and sidewalks. Some streets such as Brook may become one way with elimination of parallel parking.
- **Streets and Highways Policy 3. SR 28/267 Intersection Improvement**—This intersection will be upgraded with turn lanes, scenic improvements, and medians.
- **Streets and Highways Policy 4. Coon Street Intersection Improvement**—This four way signalized intersection on SR 28 will be upgraded with turn lanes and scenic improvements.
- **Streets and Highways Policy 5. Bear Street Intersection Improvement**—This three way intersection on SR 28 will be redesigned to include turn lanes and a conversion of Brook Street to one way.
- **Streets and Highways Policy 6. Truck Route/By Pass**—Improvement of the existing truck route or relocation should be considered in future traffic studies, provided conflict can be avoided with sensitive locations such as schools and residential neighborhoods.
- **Parking Facilities Policy 1. Kings Beach Parking**—To meet parking requirements, compensate for lost parking due to SR 28 improvements, achieve targets, and provide for additional development, a series of parking lots are to be constructed. The lots shown in Figure 3 (not shown) from the TRPA Transportation/Control Program/Action Element are conceptual in design and location and will require further study. The location and size of the parking shall be based on an area-wide analysis/program developed by Placer County. The CIP lists the important public parking lots.
- **Transit Facilities Policy 1. Tahoe Area Regional Transit (TART) Expansion**—Increased service from TART by decreasing headways, increasing the variety of vehicles, and increasing the hours of operation. Possible locations of routes, bus stops, and parking lots are shown in Figure 3 (not shown) from the TRPA Transportation/Control Program/Action Element and are further described in Chapter VII (Improvement Program), from the Kings Beach Community Plan.
- **Transit Facilities Policy 2. Kings Beach/Tahoe Vista Shuttle**—A shuttle that serves just Kings Beach, Tahoe Vista, and North Stateline with short headways will be provided for peak seasons.

- **Transit Facilities Policy 3. Water Transit Terminals**—Opportunities for water transit are included in the area of the state park.
- **Transit Facilities Policy 4. Ski/Tour Shuttles**—Coordination of transit services to recreational destinations (i.e., ski buses) will provide transit during the critical winter peaks.
- **Transit Facilities Policy 5. Truckee Shuttle**—Tour bus service and a TART connection to the Amtrak train depot in Truckee will provide transit service to the area visitors.
- **Transit Facilities Policy 6. Lake Tour Bus**—An around-the-lake bus system will provide for longer range trips for visitors and residents.
- **Pedestrian Facilities Policy 1. SR 28 Pedestrian Facilities**—The construction of sidewalks on SR 28 is shown in Figure 3 (not shown) from the TRPA Transportation/Control Program/Action Element. The conceptual designs of the sidewalk system for the pedestrian area and the entry areas are shown in the Appendix N from the Kings Beach Design Standards and Guidelines (not included) and include landscaping, lighting, trash receptacles, and bike racks.
- **Transit Facilities Policy 2. Local Commercial Street Pedestrian Facilities**—The construction of sidewalks on local commercial streets is shown in Figure 3 (not shown) from the TRPA Transportation/Control Program/Action Element. The conceptual design of the sidewalk system is shown in Appendix N from the Kings Beach Design Standards and Guidelines (not included) and includes landscaping, lighting, trash receptacles, and bike racks.
- **Bicycle Facilities Policy 1. Recreational Trail System**—To improve circulation, reduce vehicle trips, and improve public access to Lake Tahoe, the CP calls for the construction of the SR 28 trail system and the Lake Promenade shown in Figure 3 (not shown) from the TRPA Transportation/Control Program/Action Element. Also, included is the proposed trail connecting the Kings Beach Elementary School with the state park.

Conservation Element

Environmental Targets Policy 3: Scenic

The opportunities for scenic restoration have been identified by the TRPA Scenic Thresholds. Kings Beach has been identified by the TRPA Scenic Quality Improvement (SQIP) as in need of scenic improvements for the highway unit.

- **Base Line:** The 1982 Inventory identifies two principal resources within the unit: Views out to the lake and the ridgelines beyond and views north to the forested mountain slopes and ridgelines. Within the Kings Beach Community

Plan portion of this unit, the two locations identified as providing significant lake views are subcomponents 5 and 3.

- **Travel Route Rating:** 10
- **Scenic Resource Threshold:** 9

The Kings Beach area generally needs to present a more coordinated appearance with fewer visual distractions so that viewers will be permitted to enjoy the area's positive visual qualities. Recommendations to simplify and upgrade the character and quality of the commercial strip include consistency of setbacks, attention to parking and landscaping, undergrounding of utilities, and design and sign program compliance.

- **TRPA Threshold:** The TRPA Thresholds require the TRPA to attain and maintain Scenic Route Ratings at 15+ for highway units and 7+ for shoreline units.
- **Regional Plan Requirements:** The Regional Plan requires implementation of the Scenic Quality Improvement Program (including the Restoration Program, Design Review Guidelines, Design Standards and Outdoor Advertising Standards). The SQIP requires a 27% improvement in roadway scores and a 33% increase in shoreline scores by 1997.
- **Kings Beach Target:** The CP shall attain SQIP thresholds targets by 1997 through implementation of the CP Scenic Quality Improvement Program.
- **Key Implementation Strategies:** The Kings Beach Community Plan shall achieve its target by implementing regulations and improvements that satisfy the following SQIP recommendations. Regulations of the Placer County Tahoe Area Design Guidelines and the Placer County Tahoe Area Sign Ordinance will be implemented through utilizing the North Tahoe Design Review Committee and TRPA and Placer County staff. Implementation of the scenic improvements listed in Chapter VII and the sign improvement program will also be required to meet the following SQIP recommendations.

Issues that are most important within the Kings Beach area include enforcement of sign regulations, removal of overhead utility lines, and a general upgrading of the architectural quality of development in the area.

Recreation Element

Proposed Recreation Improvements 1

- **Improved Lake Access:** The Plan target requires an increase in lake access. Some of the possible improvements are the lake recreation trail system and

parking, increased beach access at the State and [North Tahoe Public Utilities District] NTPUD beaches, and increased boat launching.

Proposed Recreation Improvements 2

- **Recreation Trail System:** The Plan requires the implementation of a recreational/bike trail system mostly located along the Lake and SR 28. Also, trails connecting the elementary school with the lake should be constructed. The map shows possible alignments.

Proposed Recreation Improvements 3

- **Golf Course Improvements:** The Plan calls for the retention of the Brockway Golf Course. Figure 3 (not shown) from the TRPA Recreation Element suggests consideration of a nine-hole expansion and a renovation of the club house.

Implementation Element

SEZ Restoration Program 3: Scenic Improvements Program.

- **Purpose:** To implement the improvements needed to attain the scenic thresholds.
- **Program Description:** This program contains several programs, including:
 - **Underground Utilities:** Overhead utilities are to be undergrounded on SR 267 near the intersection of SR 28.
 - **Estimated Cost:** \$1,000,000
 - **Funding:** Private, Sierra Pacific, Pacific Bell
 - **SR 28 Improvements:** See Design Standards and Guidelines for Kings Beach SR 28 Improvements and Sign Program.
 - **Sign Program:** Nonconforming signs shall be removed pursuant to an amortization schedule or an individual schedule established with each of the businesses. The preferred method is to link the sign upgrading to the off-setting scenic improvements.

Tahoe Regional Planning Agency

Scenic Resource Thresholds

The TRPA has established four types of scenic resource thresholds to protect scenic views in the Basin, listed below. Numeric ratings are used to determine whether a

specific route or area attains the threshold; the processes by which overall ratings are determined are described below.

Scenic Resource SR-1, Travel Route Ratings

Travel route ratings track long-term, cumulative changes to views from major roadways in urban, transitional, and natural landscapes in the region and to the views seen from Lake Tahoe looking toward the shore. These ratings are measured by a numeric composite index (score) of relative scenic quality of the entire view seen from travel routes using the following threshold indicators:

- man-made features along the roadway and shoreline;
- physical distractions to driving along the roadways;
- roadway characteristics;
- view of the lake from the roadways;
- general landscape views from the roadways and shoreline; and
- variety of scenery from the roadways and shoreline.

Each indicator is rated from 1 (low or absent) to 5 (high or significant feature present) and averaged to determine the overall score. To attain the threshold, all travel routes with a score of 15.5 (roadway) or 7.5 (shoreline) or more must maintain their scores, and those with a score of 15 (roadway) or 7 (shoreline) or less must improve their scores until the threshold is met.

Scenic Resource SR-2, Scenic Quality Ratings

Scenic quality thresholds protect (i.e., maintain or enhance) specific views of scenic features of Tahoe's natural landscape that can be seen from major roadways and from Lake Tahoe itself. The TRPA provided for the development of environmental carrying capacities, or "thresholds." In 1982, the TRPA completed an inventory to define and establish thresholds for the preservation of scenic quality, established numerical

standards for roadway and shoreline travel route ratings, and developed management policies for community design elements. A total of 250 scenic resources were identified during the 1982 inventory that were visible from roadway units; 185 were identified as visible from shoreline units, including three roadway resources, and one additional shoreline resource was identified in 2001. Scenic resources include:

- foreground, middleground, and background views from roadways and of the natural landscape;
- views to Lake Tahoe from roadways;
- views of Lake Tahoe and natural landscapes from roadway entry points into the region;
- unique landscape features such as streams, beaches, and rock formations that add interest and variety, as seen from roadways;
- views of the shoreline, the water's edge, and the foreground as seen from the lake;
- views of the backdrop landscape, including the skyline, as seen from the lake; and
- visual features seen from the lake that are points of particular visual interest on or near the shore.

To determine the overall scenic quality score of a view, unity, vividness, variety, and intactness are measured on a scale from 0 (absent) to 3 (high), then the measurements are added to calculate the overall score. To attain the TRPA threshold, the scenic quality scores that were determined for the 1982 Study Report must be maintained.

Scenic Resource SR-3, Public Recreation Areas and Bike Trails

The public recreation area threshold protects the viewshed from public recreation areas and certain bicycle trails. To secure threshold attainment, all 1993 scenic quality scores must be maintained.

Scenic Resource SR-4, Community Design

The community design threshold is a policy statement that applies to the built environment. Design standards and guidelines found in the Code of Ordinances, the Scenic Quality Improvement Program, and in the adopted Community Plans provide specific implementation direction. To secure threshold attainment, design standards and guidelines must be widely implemented to improve travel route ratings and produce built environments compatible with the natural, scenic, and recreational values of the region.

Threshold Attainment and Related Policies

Specific policies from the TRPA's Scenic Quality Improvement Program that discuss scenic resource thresholds are listed below.

- **Regional Plan Goal 1, Policy 1:** The scenic quality ratings established by the environmental thresholds shall be maintained or improved.
- **Roadway and Shoreline Unit Goal 1, Policy 2:** Any development proposed in areas targeted for scenic restoration or within a unit highly sensitive to change shall demonstrate the effect of the project on the 1982 travel route ratings of the scenic thresholds.
- **Roadway and Shoreline Unit Goal 1, Policy 3:** The factors or conditions that contribute to scenic degradation in identified areas need to be recognized and appropriately considered in restoration programs to improve scenic quality.

The project site lies in the TRPA Roadway Unit 20B—Kings Beach and Roadway Unit 40—Brockway Cutoff and in Shoreline Unit 21—Agate Bay and Shoreline Unit 22—Brockway (See Figure 3.15-15). Shoreline Unit 21—Agate Bay is considered a travel route unit at risk because “rebuilds and upgrades with inadequate improvements continue this unit at risk” (Tahoe Regional Planning Agency 2002).

Proposed off-street parking will impact existing trees (see Figure 3.15-16). The following tree removal ordinance will apply (selected sections are in logical/applicable order).

TRPA Code of Ordinance—Chapter 71 Tree Removal

- 71.2 Late Seral/Old Growth Enhancement and Protection: In addition to other code sections the following standards will govern forest management activities and projects.
- 71.2.B Standards for Non-SEZ Urban Lands: Within non-SEZ urban areas: Individual trees larger than 30 inches dbh that are healthy and sound shall be retained as desirable specimen trees having aesthetic and wildlife value, unless 1) all reasonable alternatives are not feasible to retain the tree, including reduction of parking areas or modification of the original design, or 2) paragraphs 71.2.A (1), 71.2.A (2), 71.2.A (3), 71.2.A (7), 71.2.A (8), or 71.2.A (9) can be applied.
- 71.2.A Standards for Conservation and Recreation Lands: Within lands classified by TRPA as conservation or recreation land use or Stream Environment Zones, any live, dead or dying tree greater than or equal to 30 inches dbh in westside forest types shall not be cut, and any live, dead or dying tree greater than or equal to 24 inches dbh in eastside forest types shall not be cut. However, the following exceptions apply.
 - (1) Trees and snags larger than 30 inches dbh in the westside forest types and 24 inches dbh in eastside forest types may be cut in urban interface areas if TRPA determines that they would unreasonably contribute to fuel conditions that would pose a fire threat or hinder defense from fire in an urbanized area. Within the urban interface areas, fire management strategies favoring the retention of healthy trees 30 inches dbh or larger in the westside forest types and 24 inches dbh or larger in eastside forest types trees shall be fully considered. Urban interface areas are defined as all undeveloped lands within a 1,250-foot zone immediately adjacent to TRPA residential, commercial, or public service plan area boundaries.
 - (2) A tree larger than 30 inches dbh in westside forest types and larger than 24 inches dbh in eastside forest types may be felled, treated, or removed if TRPA and the land manager determine the tree poses an unacceptable risk to occupied or substantial structures or areas of high human use. Examples of areas of high human use are campgrounds, parking lots, ski trails, and developed beaches. Where a land manager determines that a tree constitutes a physical emergency (e.g., imminent threat of falling on occupied or substantial structures or people), the land manager may remove the tree but must provide photographic documentation to TRPA within 2 working days.
 - (3) Where immediate treatment and removal is warranted to help control an outbreak, severely insect-infested or diseased trees may be removed. Trees

to be felled, treated, or removed require TRPA review on a tree-by-tree basis, within 30 working days of written notification by the land manager.

- (7) In case of extreme fuel loading, some snags larger than 30 inches dbh in the westside forest types and 24 inches dbh in eastside forest types may be cut if the removal is consistent with 78.2.D.
- (8) Large trees may be removed for large public utilities projects if TRPA finds there is no other reasonable alternative.
- (9) Tree Removal During Emergency Fire Suppression Activities: Trees may be removed when an emergency fire suppression need exists as determined by the local, state or federal fire suppression agency involved in a fire suppression activity.

Design Standards

The following should be considered for the development of specific mitigation measures required for the proposed action: design standards contained in Chapters 30, 65, 71, and 77 and in Section VII of the Code of Ordinances (Tahoe Regional Planning Agency 2004a); Design Review Guidelines, Scenic Quality Improvement Program, and Technical Appendices of the Regional Plan for the Lake Tahoe Basin (Tahoe Regional Planning Agency 1989); Draft Roadway Design Standards and Guidelines (Tahoe Regional Planning Agency 2004c); Placer County Tahoe Area Design Guidelines (Placer County 2003); and the Placer County Tahoe Area Sign Ordinance (Placer County 2006b).

3.15.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

Identification of existing conditions with regard to visual resources entails three steps.

- Objective identification of the visual features (visual resources) of the landscape.
- Assessment of the character and quality of those resources relative to overall regional visual character.
- Identification of the importance to people, or sensitivity of views of visual resources in the landscape.

With an establishment of the baseline (existing) conditions, a proposed action or other change to the landscape can be systematically evaluated for its degree of impact. The degree of impact depends both on the magnitude of change in the visual resource (i.e., visual character and quality) and on viewers' responses to and concern for those changes. This general process is similar for all established federal procedures of visual assessment (Smardon et al. 1986) and represents a suitable methodology of visual assessment for other projects and areas.

The approach for this visual assessment is adapted from the FHWA's visual impact assessment system (Federal Highway Administration 1983) in combination with other established visual assessment systems. The visual impact assessment process involves identification of the following:

- relevant policies and concerns for protection of visual resources;
- visual resources (i.e., visual character and quality) of the region, the immediate action area, and the project site;
- important viewing locations (e.g., roads) and the general visibility of the action area and site using descriptions and photographs;
- viewer groups and their sensitivity; and
- potential impacts.

3.15.3.1 Methods and Assumptions for the Effect Analysis

The analysis of potential effects on visual resources and aesthetics is based on field observations of the action area and surroundings and review of the following:

- engineering data and drawings for the proposed action,
- aerial and ground-level photographs of the action area,
- conceptual computer-generated visual simulations from representative viewpoints, and

- relevant planning documents.

Alternatives 2, 3, and 4 are illustrated in Figure 2.1-1, while the photo simulations depicting the visual effects of these alternatives are summarized in Appendix P, *Kings Beach Commercial Core Improvements Visual Resources/Aesthetics Assessment*. The simulations include landscaping, which is not presently part of the project description; however, the simulations help to give a general idea of the lane widening under each alternative, particularly the appearance of the lane and sidewalk widths.

A WIP is expected to add new storm drain manholes, drain inlets, earthen berms, swales and gutters, basins, infiltration beds, vault and media filters, and rock bowls to the Kings Beach project area.

Impact VIS-1: Temporary Visual Impacts Caused by Construction Activities

Alternative 1

Under these scenarios, no construction-related visual effects would occur. No mitigation is required.

Alternatives 2, 3, and 4

Construction activities in the action area would create temporary changes in views of and from the action area. While construction activities would take place over an 8- to 10-month period of time split over 2 years, construction of project elements would be intermittent and temporary. Construction activities associated with the proposed action would introduce considerable heavy equipment and associated vehicles, including dozers, graders, and trucks into the viewshed of all viewer groups. The proposed action would result in short-term visual effects.

All viewer groups would be affected by this change in visual quality, although the effect would vary in degree depending on the viewer location and sensitivity. The most affected viewers would be residents and businesses adjacent to the roadway. Adverse effects could occur to these residences and businesses because they would experience a

short-term change in the visual character of their views. However, construction activities are temporary, and all viewer groups in the action area and vicinity are accustomed to seeing construction activities and equipment from other local construction activities.

This is not considered to result in an adverse effect because construction activities are intermittent and temporary and all viewer groups in the action area and vicinity are accustomed to seeing construction activities and equipment. Additionally, construction activities would be limited to the hours of 8:00 a.m. to 6:30 p.m. to comply with TRPA requirements for construction activities.

Impact VIS-2: Adversely Affect a Scenic Vista

Each built alternative includes 5-foot bicycle lanes and improved sidewalks extending the length of the action area from east to west. Each alternative also includes improved bicycle and pedestrian crosswalks across SR 28 as well as aesthetic improvements such as new streetlights, benches, transit facilities, planters, bicycle racks, trash receptacles, and additional landscaping. Finally, Alternatives 2 and 4 compensate for lost on-street parking with proposed on- and off-street parking (Figure 3.15-16). The off-street parking will add relatively large areas of pavement within a block away or immediately bordering SR 28 that will affect some scenic vistas somewhat.

Most shoulders along SR 28 lack standard sidewalk treatment, are paved up to the ROW, and/or lack any kind of vegetation that would be impacted by the proposed action.

These common actions would have a variable effect based on viewer group and location within the landscape. Residents (private views) and businesses would experience the greatest effect, whereas recreationists and roadway travelers (public views) would experience less change in viewshed.

The project site is located within Unit 20B, which has a travel route rating below the established threshold attainment rating.

In addition to new water improvement project elements including consistent swales and gutters (not part of the proposed project), consistent sidewalks, curbs, and roadway markings would lessen overall distractions for motorists. These impacts would have minimal effects on views of Lake Tahoe and ridgelines within the roadway viewshed to the east or west.

As previously described in the *Regional Character* and the *Action Area Character* sections, the scenic quality of the Lake Tahoe area and action area is largely characterized by dense alpine tree cover. Constructing off-street parking lots for Alternatives 2 and 4 would involve removing up to 63 trees less than 29 inches diameter at breast height (dbh) and would severely damage an additional 102 trees, including 61 late seral/old growths (LSOGs). Loss of that dense canopy along SR 28 or within the proposed off-street parking lots north of SR 28 would affect the area's overall scenic quality.

Alternative 1

Under this scenario, no visual effects would occur. No mitigation is required.

Alternative 2

Alternative 2 consists of a three-lane cross-section and no on-street parking during the summer on either side of SR 28, with roundabouts at Bear Street and Coon Street. A sub-alternative also involves adding a traffic circle at the intersection with SR 267. An 18-foot sidewalk/planting area would be provided in both directions.

The proposed traffic circles would remove obstructing traffic signals from the roadway viewshed to the east and west, while they would also cause motorists to be slightly more spatially aware of traffic at intersections. Although off-street parking affects some scenic vistas, limiting on-street parking during the summer would also remove the obstruction of views of Lake Tahoe for businesses, recreationists, and motorists and remove a distraction to motorists on SR 28. Therefore, the proposed changes in Alternative 2 would not adversely affect scenic vistas.

Alternative 3

Alternative 3 consists of four-lane cross-section and on-street parking along both sides of SR 28, with traffic signals at SR 267, Bear Street, and Coon Street. Left turn lanes would be provided on SR 28 at Fox Street. A sidewalk would be provided in both directions.

The proposed minimal changes in Alternative 3 would not adversely affect scenic vistas.

Alternative 4

Alternative 4 is identical to Alternative 2, except that on-street parking would be prohibited over the entire year (including winter).

The proposed traffic circles would remove obstructing traffic signals from the roadway viewshed to the east and west. Limiting on-street parking over the entire year would further remove the obstruction to views of Lake Tahoe for businesses, recreationists, and motorists. Therefore, the proposed changes in Alternative 4 would not adversely affect scenic vistas.

Impact VIS-3: Degrade the Existing Visual Character or Quality of the Site and Its Surroundings

Alternative 1

Under this scenario, no degradation of the existing visual character or quality of the site and its surroundings effects would occur. No mitigation is required.

Alternatives 2, 3, and 4

Each proposed alternative includes 5-foot bicycle lanes and improved sidewalks extending the length of the action area from east to west. Besides new water improvement project elements such as consistent swales and gutters, which are not part of the proposed project, each alternative also includes improved bicycle and pedestrian crosswalks across SR 28 as well as aesthetic improvements such as new streetlights, benches, transit facilities, planters, bicycle racks, trash receptacles, and additional landscaping.

These common actions would have a variable effect based on viewer group and location within the landscape. Residents (private views) and businesses would experience the greatest effect, whereas recreationists and roadway travelers (public views) would experience less change in viewshed.

Alternative 2

Alternative 2 consists of a three-lane cross-section and no on-street parking during the summer on either side of SR 28, with roundabouts at Bear Street and Coon Street. A sub-alternative also involves adding a traffic circle at the intersection with SR 267. An 18-foot sidewalk/planting area would be provided in both directions. Finally, Alternative 2 compensates for lost on-street parking with proposed side-street parking and newly constructed parking lots to mitigate this loss (Figure 3.15-16).

Reducing the number of lanes on SR 28 would potentially increase the number of vehicles in each lane at any one time, creating a slightly higher distraction for motorists. Constructing off-street parking lots would involve removing 63 trees that are up to 29 inches dbh and would severely damage an additional 102 trees including 71 LSOs for a total loss of up to 165 trees. The loss of dense canopy along SR 28 or within the proposed off-street parking lots north of SR 28 would degrade the existing visual character or quality of the site and its surroundings. Although Mitigation Measure VIS-1 would replace removed or permanently damaged trees with thousands of saplings, the off-street parking would introduce several areas of open space where those trees may not be planted. Also, those saplings will take close to 20 years to reach a similar level of maturity where they would create a comparable tree canopy as the existing trees. Finally, off-street parking will add relatively large areas of pavement within a block away or immediately bordering SR 28 that will degrade the existing visual character of the project site. However, reducing the number of lanes, removing on-street parking in the summer, and adding an expansive sidewalk would improve the overall visual quality on SR 28.

The proposed changes in Alternative 2 are anticipated to adversely degrade the existing visual character or quality of the site and its surroundings. Implementing Mitigation Measure VIS-1 would make this impact unlikely.

Alternative 3

Alternative 3 consists of a four-lane cross-section and on-street parking along both sides of SR 28 with traffic signals at SR 267, Bear Street, and Coon Street. Alternative 3 is the only alternative with nonstandard 11-foot lanes rather than 12-foot lanes for Alternative 2 and 4. Left turn lanes would be provided on SR 28 at SR 267, Bear Street, Fox Street, Coon Street, and Chipmunk Street. A sidewalk would be provided in both directions.

Although nonstandard 11-foot lanes would slow traffic and distract motorists somewhat, adding sidewalks and left turn lanes would reduce motorist distractions. The proposed changes in Alternative 3 are not anticipated to adversely degrade the existing visual character or quality of the site and its surroundings.

Alternative 4

Alternative 4 is similar to Alternative 2 with the significant difference that on-street parking would be prohibited over the entire year (including winter) and sidewalks would be the widest at 17.4 feet. As with Alternative 2, impacts are considered adverse although no on-street parking and 17.4 foot sidewalks improve the area's visual character compared to Alternative 2. Implementing Mitigation Measure VIS-1 would make this impact not likely.

Impact VIS-4: Create a New Source of Light and Glare that Affects Views in the Area

Alternative 1

Under this scenario, no light or glare effects would occur. No mitigation is required.

Alternatives 2, 3, and 4

Alternatives 2, 3, and 4 each propose replacing existing standard tall galvanized steel streetlights, presumably with a larger number of shorter lights, each with a more narrow spread of light.

Nighttime Light

This lighting plan is expected to be slightly less obtrusive and more pleasing overall for nighttime views of the area. Further, Alternatives 2 and 4 would reduce the number of primary traffic lanes by two, which would reduce the effects of vehicle headlights at any one time on SR 28 but also potentially increase the duration of headlight glare during congestion. Thus, while Alternative 3 would impact the project area slightly less than Alternatives 2 and 4, none of the alternatives are anticipated to create a new source of light and glare that adversely affects views in the area. Although effects are not anticipated to be adverse, implementing Mitigation Measures VIS-2, VIS-3, and VIS-4 would improve the aesthetics of the proposed action area and help to minimize effects.

Daytime and Nighttime Glare

The proposed action would presumably replace chrome-colored streetlights with shorter earth-toned materials that would provide less daytime and nighttime glare. Therefore, all alternatives are not anticipated to adversely create a new source of light and glare that affects views in the area. Although no adverse effects are anticipated, implementing Mitigation Measures VIS-3 and VIS-4 would improve the aesthetics of the proposed action area and help to minimize effects.

Impact VIS-5: Conflict with Policies or Goals Related to Visual Resources (No Impact)

Alternative 1

Under this scenario, no conflict with policies or goals would occur. No mitigation is required.

Alternatives 2, 3, and 4

Under these scenarios, no conflict with policies or goals would occur. No mitigation is required.

3.15.4 Mitigation, Avoidance, Minimization, and Compensation Measures

The proposed action incorporates the following mitigation measures to minimize visual resources impacts. Mitigation Measure VIS-2 and VIS-4 are from the TRPA Design Review Guidelines 1989.

Mitigation Measure VIS-1: Implement Project Landscaping Plan to Replace Trees that are Removed, Using the Specified Guidelines

In addition to Biological Resources *Mitigation Measure 3.16.4.4, Revegetate Disturbed Areas* to the greatest extent possible, selecting the proposed off-street parking lots will be prioritized in the order of those that severely damage LSOGs from least to most (see Table 3.15-3, *Summary of Impacts on Trees* below).

These practices will also be followed to implement the project landscaping plan.

- Vegetation will consist of plant material that is indigenous to the Lake Tahoe Basin.
- Vegetation will be planted within the first year following project completion.
- Vegetation will be used to screen newly established parking areas using a planting design that is randomized to mimic natural patterns.
- Measures will be taken to ensure revegetation success such as amending any insufficient soils.
- An irrigation and maintenance program will be implemented during the plant establishment period.

Table 3.15-3. Summary of Impacts on Trees

Element ^a	LSOGs Severely Damaged	LSOGs Removed	Trees Severely Damaged ^b	Trees Removed	LSOG Quantity	Tree Quantity
1	3	0	2	2	3	7
3	9	0	1	3	10	16
4	3	0	2	2	3	7
6	5	0	1	3	8	7
7	1	0	0	0	1	2
8	5	0	4	6	7	20
9	5	0	2	7	8	7
10	0	0	0	0	NA ^c	NA ^c
14	3	0	1	8	3	12
15	1	0	4	3	2	13
17	2	0	1	2	2	11
18	0	0	0	0	0	3
19	0	0	0	3	0	3
20	0	0	0	0	NA ^c	NA ^c
21	1	0	4	1	2	6
22	3	0	1	0	3	4
23	2	0	0	1	2	3
24	0	0	1	0	0	1
25	10	0	2	7	10	23
26	1	0	2	1	1	4
27	0	0	3	5	0	8
28	0	0	0	0	NA ^c	NA ^c
29	1	0	4	1	1	6
30	3	0	1	0	3	4
31	1	0	0	0	1	1
32	0	0	2	4	0	30
33	1	0	2	0	1	6
34	1	0	1	4	1	6
Totals:	61	0	41	63	72	210

Notes:

^a Figure 3.15-17 illustrates the locations of each project element within the biological study area. The locations, dbh, and removal status of trees found within each element within the KBCC are found in Appendix P.

^b *Severely damaged* is soil disturbance within a radius equal to three times the tree's dbh.

^c Non-LSOGs may be located on these potential parking locations. However, the trees would be avoided and no trees would be removed if these locations are chosen.

Mitigation Measure VIS-2: Lighting Levels

Avoid consistent overall lighting and overly bright lighting. The location of lighting should respond to the anticipated use and should not exceed the amount of light actually required by users. Lighting for pedestrian movement should illuminate entrances, changes in grade, path intersections, and other areas along paths that, if left unlit, would cause the user to feel insecure. As a general rule of thumb, one foot candle per square foot over the entire action area is adequate. Lighting suppliers and manufacturers have lighting design handbooks that can be consulted to determine fixture types, illumination needs, and light standard heights.

Mitigation Measure VIS-3: Directed Lighting

Lights will be screened and directed away from residences to the highest degree possible and the amount of nighttime lights used will be minimized to the highest degree possible. In particular, lighting will employ shielding to minimize off-site light spill and glare. In addition, the following measures apply.

- Luminaire spacing should be the maximum allowable for traffic safety.
- Luminaires should be cutoff-type fixtures that cast low-angle illumination to minimize incidental spillover of light onto adjacent private properties and undeveloped open space. Fixtures that project upward or horizontally should not be used.
- Luminaires should be directed toward the roadway and away from adjacent residences and open space areas.
- Luminaire lamps should provide good color rendering and natural light qualities. Low-pressure and high-pressure sodium fixtures that are not color-corrected should not be used.
- Luminaire intensity should be the minimum allowable for traffic safety.

- Luminaire mountings should be downcast and the height of the poles minimized to reduce potential for backscatter into the nighttime sky and incidental spillover of light into adjacent private properties and open space.
- Luminaire mountings should have nonglare finishes.

Mitigation Measure VIS-4: Highway Fixtures with Low-Sheen and Non-Reflective Surface Materials

Guardrails and other highway fixtures, including but not limited to, retaining walls, safety barriers, traffic signals and controllers, light standards, and other structures, will be limited to the minimum length, height, and bulk necessary to adequately provide for the safety of the highway user. Earth tone colors of dark shades and flat finish will be used on all highway fixtures. New and replacement guardrails will not have a shiny reflective finish. (These features are typically galvanized steel, which weathers naturally to a non-glare finish typically within a year or so.) Retaining walls and other erosion control devices or structures, will be constructed of natural materials whenever possible and will, to the maximum extent possible, be designed and sited as to not detract from the scenic quality of the corridor. Such structures will incorporate heavy texture or articulated plane surfaces that create heavy shadow patterns. Adopted community plans may establish equal or superior standards for highway fixtures.

3.15.5 Compliance with Tahoe Regional Planning Agency Code—Specific Unit Impacts

The TRPA Scenic Quality Improvement Program (SQIP) guidelines were used to determine whether the proposed action would have an adverse effect. The proposed action may have an adverse effect on visual resources and potentially can be denied if the ratings for scenic resources indicators are lowered by the proposed action. Especially in units that are in nonattainment or at risk, it is also expected that each project must seek to improve preproject conditions; therefore, improving existing threshold ratings. These thresholds are described under *Regulatory Setting*.

Context-Based Standards

According to the TRPA, numerical standards are drawn from the context of other numerical ratings.

Although a numerical standard to assess threshold attainment for community design does not exist, it is possible to draw conclusions from other numerical ratings (Tahoe Regional Planning Agency 2002).

Types of Improvements Affecting Scores

The most dramatic improvements in 2001 were seen in the South Lake Tahoe Redevelopment Area.

Removal of degraded structures, improvement in architectural quality of new and remodeled structures, increased landscaping and landscaped open space, decreases in highway curb cuts, and improved signage have all contributed to a remarkable transformation.

Improvements similar to the proposed action were seen east of Unit 20B.

The North Stateline Beautification project in Washoe County has resulted in improved scenic quality in the built environment with the construction of a sidewalk and landscaping project (Tahoe Regional Planning Agency 2002).

The single most dramatic numerical improvement was four points. Overall, roadway travel route scores improved in 16 units with a total improvement of 22.5 points. Of these, 5.5 points result, in whole or in part, from reassessment of previous scores. The most dramatic improvement, four points, was realized in Unit 33-The Strip (Tahoe Regional Planning Agency 2002).

Expected Threshold Attainment for Unit 20B

Unit 20B was expected to produce scores closer to attainment near 2007.

Considering existing trends and planning efforts and the scope of needed improvements to reach attainment, the following roadway units are positioned to reach attainment in the fairly short-term: Unit 18, Carnelian Bay, and Unit 25, Crystal Bay. In addition, continued improvements in Unit 20B, Kings Beach and Unit 33, The Strip are underway and may produce scores much closer to attainment within the next five years (Tahoe Regional Planning Agency 2002).

The potential changes resulting from the proposed action to existing travel route ratings and scenic quality ratings of each of the following units are summarized in Tables 3.15-4 and 3.15-5 (below), respectively.

Permanent Changes to Views in Roadway Unit 20B—Kings Beach

Alternative 1

Under this scenario, no permanent changes to views in Roadway Unit 20B would occur. No mitigation is required.

Alternatives 2 and 4

While the proposed off-street parking would replace existing trees with relatively large areas of pavement within a block away or immediately bordering SR 28, Alternatives 2 and 4 would reduce the number of primary traffic lanes, reduce or eliminate on-street parking, and add traffic circles that would improve the visual quality of SR 28 with landscaping in the center of motorists' views. Thus, Alternatives 2 and 4 would increase the 2001 Travel Route Rating "Road Structure" score from 1 to 3 and would increase the "Roadway Distractions" score from 2 to 3 with all other scores remaining the same. This would result in an increase of 3 points for a total Travel Route Rating of 15.5.

The proposed action would increase the 2001 Scenic Quality Rating "Intactness" score from 2 to 3 with all other scores remaining the same. This would result in an increase of 1 point for a total Scenic Quality Rating of 10.

Alternative 3

Alternative 3 would improve the existing highway shoulder treatment with sidewalks and improved highway fixtures. However, the number of primary traffic lanes and on-street parking would not be reduced, and traffic circles would not be added for improved visual quality. Therefore, Alternative 3 would increase the 2001 Travel Route Rating “Road Structure” score from 1 to 2.5 and would increase the “Roadway Distractions” score from 2 to 2.5 with all other scores remaining the same. This would result in an increase of 2 points for a total Travel Route Rating of 14.5.

Alternative 3 would increase the 2001 Scenic Quality Rating “Intactness” score from 2 to 3 with all other scores remaining the same. This would result in an increase of 1 point for a total Scenic Quality Rating of 10.

Permanent Changes to Views in Roadway Unit 40—Brockway Cutoff

The proposed action would result in no changes in Travel Route Rating or Scenic Quality Rating scores.

Permanent Changes to Views in Shoreline Unit 21—Agate Bay

The proposed action would result in no changes in Travel Route Rating or Scenic Quality Rating scores.

Permanent Changes to Views in Shoreline Unit 22—Brockway

The proposed action would result in no changes in Travel Route Rating or Scenic Quality Rating scores.

Permanent Changes to Views in Recreation Unit 9—Kings Beach

The proposed action would result in no changes in Travel Route Rating or Scenic Quality Rating scores.

Table 3.15-4. 2001 Travel Route Rating Changes Resulting from the Proposed Action

	2001 Travel Route Rating (Tahoe Regional Planning Agency 2002)	Rating Change from the Proposed Action
Roadway Units		
20B—Kings Beach	12.5	15.5*
40—Brockway Cutoff	15	No change
Shoreline Units		
21—Agate Bay	8	No change
22—Brockway	9	No change
Recreation Area		
9—Kings Beach	NA	No change
Note:		
* Alternative 3 would change the Unit 20B score to 14.5.		

Table 3.15-5. 2001 Scenic Quality Rating Changes Resulting from the Proposed Project

	2001 Scenic Quality Rating	Rating Change from the Proposed Project
Roadway Units		
20B—Kings Beach	9	10
40—Brockway Cutoff	8	No change
Shoreline Units		
21—Agate Bay	8	No change
22—Brockway	9	No change
Recreation Area		
9—Kings Beach	12	No change

3.16 Biological Resources

This section provides a summary of the characteristic vegetation types and wildlife habitats present within the action area and discusses important components of these natural communities, including late-successional and old-growth (LSOG) trees, wetlands and waterways, regional special-status plant and wildlife species, and weedy plant species. The primary source of information presented in this section is the *Kings Beach Commercial Core Improvement Project Revised Natural Environment Study*, which provides study methods and more detailed descriptions of the biological resources present in the action area. The Natural Environment Study is included as Appendix Q of this document. Information in this section is also based on the *Kings Beach Commercial Core Improvement Project Preliminary Delineation of Wetlands and Other Waters of the United States*, which is included as Appendix I of this document.

3.16.1 Affected Environment

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation.

Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value. Wetlands and other waters are also discussed in *Section 3.16.1.3*.

Three principal vegetation communities characterize the action area: urban-altered Jeffrey pine forest, SEZs, and montane riparian. Several scattered wetland areas, which are described in *Section 3.16.1.3*, are also located within the action area (Figure 3.16-1).

3.16.1.1 Vegetation Communities

Urban-Altered Jeffrey Pine Forest

The action area contains approximately 775.4 acres of urban–altered Jeffrey pine forest. This community is predominately second and third growth remnant forest stands of Jeffrey pine (*Pinus jeffreyi*) with incense-cedar (*Calocedrus decurrans*), white fir (*Abies concolor*), and ponderosa pine (*Pinus ponderosa*) providing additional tree cover. Commercial and residential areas are interspersed throughout the forest stands. The shrub understory within this urbanized community consists of sparse and scattered mixed montane chaparral species including greenleaf manzanita (*Arctostaphylos patula*), antelope bitterbrush (*Purshia tridentata*) and snowberry (*Symphoricarpus* spp.).

An herbaceous component in of the understory is largely lacking. The commercial zone of the action area adjacent to SR 28 is primarily covered with structures and other hardscape features.

Ninety-one LSOGs, defined by TRPA as large and/or old conifer trees equal to or greater than 30 inches in dbh, are present within the urban-altered Jeffrey pine forest. The majority of LSOGs within the action area are Jeffrey and ponderosa pines; a few are incense cedar. Table 3.16-1 summarizes the number of trees, including LSOGs, surveyed within each proposed action element site, while Figure 3.16-1 shows the locations of these trees.

Stream Environment Zones

TRPA land use classifications define SEZs as very sensitive, with a low tolerance for disturbance. They are therefore considered special-status communities. TRPA performed a formal land capability verification of the action area and provided Placer County with a map of the verified land capability boundaries on June 28, 2004 (Hammer 2004). The SEZ area designated by TRPA within the biological study area (BSA) covers approximately 209 acres. Land capability 1b indicates the presence of SEZs, as shown on Figures 2 and 3 of the NES, and includes the 10-foot SEZ setback. Within the BSA,

verified SEZs are located within the vicinity of Griff Creek; south of SR 28 to and including the lakefront to just east of Coon Street; from near the intersection of Trout Avenue and Coon Street, following Coon Street to the lake; at the corner of Salmon Avenue and Fox Street; and at the southeast corner of the BSA.

Montane Riparian

Riparian vegetation is located within the Griff Creek SEZ, the Kings Beach SRA, drainage outlets on the beach, topographically low areas located south of SR 28, and rock-lined channels within the residential and commercial areas that collect surface drainage (Figure 3.16-1). Predominant species include quaking aspen (*Populus tremuloides*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), mountain alder (*Alnus incana* ssp. *tenuifolia*), and white poplar (*Populus alba*) in the tree overstory and Woods rose (*Rosa woodsii*), chokecherry (*Prunus virginiana*), willows (*Salix* spp.), and currant (*Ribes* spp.) in the shrub understory. Herbaceous species commonly observed in these areas include horsetail (*Equisetum* spp.), sedge (*Carex* spp.), rush (*Juncus* spp.), and Kentucky bluegrass (*Poa pratensis*). A band of emergent vegetation consisting of small fruit bulrush (*Scirpus microcarpus*) also was observed on a low-lying bench adjacent to Griff Creek and the containment basin (Figure 3.16-1).

Table 3.16-1. Summary of Tree Inventory by Project Element

Project Element No. ^a	Tree Quantity	LSOG Quantity
1	7	3
3	16	10
4	7	3
6	7	8
7	2	1
8	20	7
9	7	8
10 ^b	0	0
14	12	3
15	13	2
17	11	2
18	3	0
19	3	0
20 ^b	0	0
21	6	2
22	4	3
23	3	2
24	1	0
25	23	10
26	4	1
27	8	0
28 ^b	0	0
29	6	1
30	4	3
31	1	1
32	30	0
33	6	1
34	6	1
Total	210	72

Note:

^a Appendix E of the NES describes all trees inventoried within the action area and includes tree species, height, dbh and condition. Appendix E also illustrates the location of each tree within each project elements.

^b Non-LSOGs may be located on these potential parking locations. However, the trees would be avoided and no trees would be removed if these locations are chosen.

3.16.1.2 Wildlife

Many wildlife species associated with montane forests in the Basin, including Jeffrey pine habitat, will tolerate forests fragmented by urban development, especially when alternative food sources are available. Common mammal species known to utilize urban forests include the chipmunk (*Eutamias* sp.), golden-mantled ground squirrel (*Spermophilus lateralis*) and western gray squirrel (*Sciurus griseus*). The black bear (*Ursus americanus*), a regional species of concern has adapted to urban development and is a frequent visitor to garbage cans and dumpsters in some areas. Numerous birds—including mountain chickadee (*Poecile gambeli*), American robin (*Turdus migratorius*), Steller's jay (*Cyanocitta stelleri*), mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), red-breasted nuthatch (*Sitta Canadensis*), brown creeper (*Certhia Americana*), dark-eyed Junco (*Junco hyemalis*), warbling vireo (*Vireo gilvus*) and yellow-rumped warbler (*Dendroica cornata*)—have also adapted to this urban forest environment. California gulls (*Larus californicus*), mallards (*Anas platyrhynchos*), brown-headed cowbirds (*Molothrus ater*), Brewer's blackbirds (*Euphagus cyanocephalus*), and common ravens (*Corvus corax*) commonly rest and forage along the shore of Lake Tahoe in the BSA. Song sparrows (*Melospiza melodia*), Wilson's warblers (*Wilsonia pusilla*), ruby-crowned kinglets (*Regulus calendula*), and barn swallows (*Hirundo rustica*) typify the avifauna of riparian areas along Griff Creek.

3.16.1.3 Wetlands and Other Waters of the United States

Harding ESE, Inc. (2001) conducted the first delineation of the action area and identified 1.23 acre of wetlands and 0.20 acre of other waters of the United States (i.e., Griff Creek and Lake Tahoe). Although this delineation was verified by the USACE, subsequent delineations were conducted by Mactec Engineering and Consulting, Inc. (2003, 2006c) and Jones & Stokes (2006) as a result of modifications to the action area and inopportune weather conditions. The 2002 and 2006 delineations conducted by Mactec Engineering and Consulting, Inc., were not verified (e.g., the 2006 delineation identified eight ephemeral drainage features that could not be quantified due to snow cover). Jones and Stokes (2006) conducted a wetland delineation of the entire action area in September

2006 and identified 0.329 acre of jurisdictional wetlands and 0.390 acre of other waters of the United States (Appendix I). Several intermittent drainage ditches were also identified within the action area. The ditches appeared to be man-made, constructed in uplands for the purpose of drainage, and contained upland plant species. Based on these characteristics the intermittent drainage ditches were determined not be wetlands and outside the scope of USACE jurisdiction under Section 404. These results were verified by the USACE on February 26, 2007 (regulatory document 200600998).

The 0.329 acre of jurisdictional wetlands comprises seven depressional wetlands, five of which are sediment detention basins. The 0.390 acre of other waters of the United States consists of Griff Creek, a perennial stream, and Lake Tahoe, a navigable water body of the United States.

3.16.1.4 Regional Species of Concern

The action area contains or is adjacent to habitat for various regional plant and wildlife species of concern. Plant and wildlife species designated by the U.S. Fish and Wildlife Service (USFWS), CDFG, TRPA, and Lake Tahoe Basin Management Unit as species of concern and that have the potential to occur in the Basin are identified in Table 3.16-2 and are discussed below.

Plant Species of Concern

Thirty vascular plants, mosses, and lichens were identified as regional species of concern occurring in the vicinity of the action area (Table 3.16-2). Suitable habitat for twelve of these species was identified in the action area, but none of these species was detected during surveys of the action area (Table 3.16-3). Therefore, plant species of concern are presumed to be absent from the action area.

Wildlife Species of Concern

Twenty-four species of wildlife and two species groups (waterfowl and migratory birds) were identified as regional species of concern occurring in the vicinity of the action area

Table 3.16-2. Regional Species of Concern Potentially Occurring in the Project Area

Scientific Name	Common Name	Status ¹	General Habitat Description	Habitat ⁴	Rationale
MAMMALS					
<i>Aplodontia rufa californica</i>	Sierra Nevada Mountain Beaver	DFG (CSC)	Occurs within dense forest and thickets, usually in moist soils and near and abundant supply of water	A	Limited habitat in SEZ but highly disturbed by nearby human activity
<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat	LTBMU (S), FWS (SC), CDFG (SCS)	Most abundant in mesic habitats.	A	Limited mesic habitat.
<i>Gulo gulo</i>	California Wolverine	LTBMU (S), CDFG (FP)	Mixed conifer, red fir, and lodgepole habitats with dense cover, open areas, and low human disturbance.	A	Limited and patchy urban/mixed conifer habitat that is low in cover and high in human disturbance.
<i>Lepus americanus tahoensis</i>	Sierra Nevada Snowshoe Hare	DFG (CSC)	Prefers dense cover of coniferous and mixed forests with abundant understory cover. Also utilizes coniferous swamps adjacent to mixed forests.	A	Limited habitat in Griff Creek SEZ, but isolated and highly disturbed with human activity.
<i>Martes americanus</i>	American Marten	LTBMU (S), FWS (SC)	Mixed evergreen forests with more than 40% crown closure, with large trees and snags. Habitat with limited human use is important.	A	Limited and patchy Jeffrey pine/urban habitat with greater than 40% canopy cover. High human disturbance.
<i>Martes pennanti</i>	Fisher	FWS (C)	Large areas of dense mature (intermediate to large) trees in coniferous forests, deciduous riparian habitats, snags, and a high percentage of canopy cover.	A	Limited and patchy mature Jeffrey pine/urban habitat with greater than 40% canopy cover. High human disturbance.
<i>Odocoileus hemionus</i>	Mule Deer	TRPA (SI), LTBMU (MIS)	Intermediate successional stages of most forest, woodland, and brush habitats. Prefer a mosaic of woody cover, meadow, shrubby openings, and water habitats.	A	Fragmented urban coniferous forest and riparian habitat. Minimal forage and protective cover.
<i>Taxidea taxus</i>	American Badger	DFG (CSC)	Most abundant in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	A	Existing limited habitat with friable soils is highly disturbed by development and human activity.
<i>Ursus americanus</i>	Black Bear	LTBMU (MIS)	Dense stands of mature forests including brushy forests, riparian, and wet meadow habitats.	P	Species known to frequent urban/forest areas of Lake Tahoe.

Table 3.16-2. Continued

Scientific Name	Common Name	Status ¹	General Habitat Description	Habitat ⁴	Rationale
<i>Vulpes vulpes nescator</i>	Sierra Nevada Red Fox	LTBMU (S), FWS (SC)	A variety of habitats including wet-meadow, montane chaparral, montane riparian, mixed conifer, red fir, lodgepole pine, and ponderosa pine. Dense vegetation required for cover and denning. Open areas for hunting.	A	Limited and patchy urban/coniferous habitat and dense vegetation for cover and denning.
BIRDS					
<i>Accipiter gentilis</i>	Northern Goshawk	TRPA (SI), LTBMU (S), FWS (SC), CDFG (SCS)	Mature and old-growth dense conifer forests and deciduous habitats, interspersed with meadows, openings, and riparian areas.	A	Limited and patchy urban/forest with no meadows. High human disturbance.
<i>Anas platyrhynchos</i>	Mallard	TRPA (SI), LTBMU (MIS)	Fresh emergent wetlands, riverine habitats, and ponds.	P	Griff Creek and the associated retention pond provide mallard nesting and foraging habitats.
<i>Aquila chrysaetos</i>	Golden Eagle	TRPA (SI), CDFG (SCS)	Mountain terrain with open slopes, cliffs, and rock outcrops.	A	Absence of open slopes, cliffs, and rock outcrops.
<i>Dendragapus obscurus</i>	Blue Grouse	LTBMU (MIS)	Medium to mature coniferous habitats with open brushy areas and open grass/forb areas all close to water.	A	Limited and patchy urban/mature forest with no large open brushy or grass/forb areas.
<i>Dryocopus pileatus</i>	Pileated Woodpecker	LTBMU (MIS)	Large areas of mature coniferous forests (100–300 years old), large snags, and a permanent source of water.	A	Limited and patchy urban/mature coniferous forest with no large snags and high human disturbance.
<i>Empidonax traillii</i>	Willow Flycatcher	LTBMU (S)	Wet meadows, ponds, and montane riparian habitats that contain extensive thickets of low willows.	A	Absence of thick and extensive thickets of low willows.
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	TRPA (SI), CDFG (FP)	Woodlands, forests and coastal habitats with cliffs and water nearby.	A	Absence of cliffs for cover and nesting.
<i>Haliaeetus leucocephalus</i>	Bald Eagle	FWS (T), TRPA (SI), CDFG (FP)	Mature coniferous forests with dominant and codominant trees. Large body of water within 1 mile. Limited human disturbance.	P	High human disturbance precludes suitable nesting habitat and offers limited roosting habitat.
<i>Pandion haliaeetus</i>	Osprey	TRPA (SI)	Open forests with large snags and near open water.	P	High human disturbance precludes suitable nesting habitat and offers limited roosting habitat.

Table 3.16-2. Continued

Scientific Name	Common Name	Status ¹	General Habitat Description	Habitat ⁴	Rationale
<i>Strix nebulosa</i>	Great Gray Owl	LTBMU (S), CDFG (SCS)	Old-growth red fir, mixed conifer, or lodgepole pine habitats with nearby wet meadows. Large broken top snags for nesting.	A	Limited and patchy urban/old-growth mixed conifer habitat. No large snags and no meadows.
<i>Strix occidentalis occidentalis</i>	California Spotted Owl	LTBMU (S), FWS (SC), CDFG (SCS)	Large areas of mature forest with large snags and a permanent source of water.	A	Limited and patchy urban/mature coniferous forest with no large snags and high human disturbance.
Not applicable	Waterfowl Species ^{2P}	TRPA (SI)	Fresh emergent wetlands, riparian habitats, ponds, and large water body.	P	Waterfowl species known to frequent Lake Tahoe and Griff Creek habitats.
Not applicable	Migratory Birds ^{3P}	FWS (SC)	Utilize a variety of habitats including montane forest, riparian, and urban/forest.	P	Presence of migratory bird species throughout all habitat types.
FISHES					
<i>Gila bicolor pectinifer</i>	Lahontan Lake Tui Chub	LTBMU (S), CDFG (SCS)	Higher water column of large, deep lakes.	A	Griff Creek does not provide required deep lake habitat.
<i>Oncorhynchus clarki henshawi</i>	Lahontan Cutthroat Trout	FWS (T), TRPA (SI)	Large terminal lakes; alpine lakes; slow, meandering low-gradient rivers; moderate gradient montane rivers, and small headwater tributary stream.	A	No known occurrence of Lahontan Cutthroat trout in the Griff Creek stream channel.
<i>Oncorhynchus mykiss</i>	Rainbow Trout	LTBMU (MIS)	Fresh water, moderate to fast flowing, well oxygenated waters for breeding.	P	Presence of habitat (Griff Creek) and known occurrences of species.
<i>Salvelinus fontinalis</i>	Brook Trout	LTBMU (MIS)	Small, cold, and clean streams, ponds and lakes.	P	Presence of habitat (Griff Creek) and known occurrences of species.
Amphibians					
<i>Rana muscosa</i>	Mountain Yellow-legged Frog	LTBMU (S) FWS (C) CDFG (SCS)	Streams, lakes and ponds in montane riparian, lodgepole pine, subalpine conifer and wet meadow habitat types.	A	Limited, patchy urban/montane riparian and wet meadow habitats. No known occurrences in Griff Creek.
<i>Rana pipiens</i>	Northern Leopard Frog	LTBMU (S), CDFG (SCS)	Quiet permanent or semi-permanent water in many habitats.	A	Limited and patchy urban/montane riparian and wet meadow habitats with quiet waters.

Table 3.16-2. Continued

Scientific Name	Common Name	Status ¹	General Habitat Description	Habitat ⁴	Rationale
PLANTS					
<i>Arabis rectissima</i> var. <i>simulans</i>	Washoe Tall Rockcress	LTBMU (LSI)	Dry, sandy granitic or andesitic soils on gentle slopes within open, mature Jeffrey pine dominated forests, often on recovering lightly disturbed soils. Elevations range from 1,839 m (6,035 ft) to 2,240 m (7,350 ft).	P	Required habitat and elevational range of species present.
<i>Arabis rigidissima</i> var. <i>demota</i>	Galena Creek Rock Cress	LTBMU (S), FWS (SC)	Sandy to rocky granitic or volcanic soils or outcrops. Moderate to steep northern slopes in moisture accumulating microsites. Rocky openings above 2,286 m (7,500 ft).	A	No moderate to steep slopes present.
<i>Arabis tiehmii</i>	Tiehm Rock Cress	LTBMU (S)	Steep outcrops, talus and scree of weathering andesitic and metavolcanic deposits or decomposed granite or carbonates. Ridgetops and dry drainages in alpine and subalpine habitats.	A	Subalpine and alpine habitats not present.
<i>Botrychium ascendens</i>	Upswept Moonwort	LTBMU (S), FWS (SC)	Mesic, meadow and riparian areas above 1,500 m (4,920 ft) elevation, under a willow canopy and in stream splash zones with moss.	P	Presence of required habitats, vegetation components. Appropriate elevation range.
<i>Botrychium crenulatum</i>	Scalloped Moonwort	LTBMU (S),	Ponderosa forests, freshwater wetlands, bogs, fens, meadows and seeps. It is found between 1,189 m (3,900 ft) and 2,499 m (8,200 ft) in elevation.	P	Presence of required mesic and Jeffrey/ponderosa pine forest and elevation range.
<i>Botrychium lineare</i>	Slender Moonwort	LTBMU (S)	At elevations between approximately 1,500 m (4,921 ft) and 3,000 m (9,843 ft) in mountains. Habitat ranges from meadow, wooded areas, cliffs or disturbed early seral sites.	P	Although there are no known occurrences within LTBMU or the BSA, the species is expected to have a wide ecological amplitude.
<i>Botrychium lunaria</i>	Common Moonwort	LTBMU (S)	Open fields and forests of southern Sierra Nevada.	A	No known occurrences within BSA, and LTBMU (outside known range).
<i>Botrychium minganense</i>	Mingan Moonwort	LTBMU (S)	Yellow pine forest along streams between 1,500 m (4,921ft) and 1,800 m (5,905 ft).	P	Presence of habitat and appropriate elevation range.
<i>Botrychium montanum</i>	Western Goblin	LTBMU (S)	Shady coniferous forests between 1,500 m (4,921 ft) and 1,800 m (5,905 ft).	P	Presence of habitat and appropriate elevation range.
<i>Draba asterophora</i> var. <i>asterophora</i>	Tahoe Draba	TRPA (SI), LTBMU (S)	Granitic rock crevices, talus, scree, or rocky decomposed granitic or volcanic soils on steep northern slopes. Subalpine forests.	A	No subalpine, rocky, steep northern slopes within proposed project area.

Table 3.16-2. Continued

Scientific Name	Common Name	Status ¹	General Habitat Description	Habitat ⁴	Rationale
<i>Draba asterophora</i> var. <i>macrocarpa</i>	Cup Lake Draba	FWS (SC), TRPA (SI), LTBMU (S)	Rocky crevices in subalpine forests above 2,500 m (8,202 ft).	A	No rocky crevices or subalpine forests within proposed project area.
<i>Epilobium howellii</i>	Subalpine Fireweed	LTBMU (S)	Wet, boggy areas, meadows and swales with grasses, moss and willows.	P	Presence of habitat and vegetation components.
<i>Erigeron miser</i>	Starved Daisy	LTBMU (S)	Upper montane coniferous forest and rocky soils.	A	No upper montane forest with rocky soils within the proposed project area.
<i>Eriogonum umbellatum</i> var. <i>torreyanum</i>	Donner Pass Buckwheat	FWS (SC), LTBMU (S)	Highly erosive volcanic soils. Meadows within a lodgepole or red fir forest.	A	No lodgepole or red fir forest habitats within proposed project area.
<i>Hulsea brevifolia</i>	Shortleaf Alpinegold	LTBMU (S)	Gravelly soils within montane forest dominated by red fir or mixed conifers. Elevations range from 1,500 m (4,920 ft) to 2,701 m (8,860 ft).	A	Outside known range for species occurrences at Yosemite Nat'l Park and not within elevational range for the species.
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i>	Kellogg's lewisia	LTBMU (LSI)	Sandy, granitic to erosive volcanic soils with granite boulders on ridgetops to open flat areas in widely spaced conifers. Elevations from 1,554 m (5,100 ft) to 2,134 m (7,000 ft).	A	Required habitat not present and outside known range of species occurrences in El Dorado Nat'l Forest.
<i>Lewisia longipetala</i>	Long-petaled Lewisia	FWS (SC), TRPA (SI), LTBMU (S)	Alpine boulder and rock field, subalpine. coniferous forest (mesic, rocky) granitic.	A	No alpine rocky or subalpine forest habitats within proposed project area.
<i>Rorippa subumbellata</i>	Tahoe Yellow Cress	TRPA (SI), LTBMU (S), FWS (C), CDFG (E)	Beaches around the perimeter of Lake Tahoe including active beaches, stream inlets, beach dunes and backshore depressions.	P	Presence of habitat at shorezone.
<i>Peltigera hydrothyria</i>	Veined Water Lichen	LTBMU (S)	Lower to mid-montane elevations in small, fresh water, perennial streams with little fluctuation in water level and scouring.	P	Presence of required freshwater habitat.
<i>Bruchia bolanderi</i>	Bolander's Candle Moss	LTBMU (S)	Ephemeral wetland areas in meadow habitats of mixed conifer and alpine communities along ditches and streams.	P	Presence of ephemeral wetland habitats.
<i>Helodium blandowii</i>	Blandow's Helodium Moss	LTBMU (LSI)	Wet areas dominated by willows and mineotropic peatlands.	P	Presence of willow canopy and wet areas at Griff Creek.

Table 3.16-2. Continued

Scientific Name	Common Name	Status ¹	General Habitat Description	Habitat ⁴	Rationale
<i>Meesia longiseta</i>	Meesia Moss	LTBMU (LSI)	Usually in fens but sometimes along freshwater streams at high elevations.	A	Not within elevational range of the species.
<i>Meesia triquetra</i>	Three-ranked Hump-moss	LTBMU (S)	Fens, bogs and wet area at elevations between 1,300 m (4,265 ft) and 2,500 m (8,200 ft).	A	Absence of preferred acidic habitats.
<i>Meesia uliginosa</i>	Broad-nerved Hump-moss	LTBMU (S)	Fens, bogs and wet meadows at elevations between 1,300 m (4,265 ft) and 2,500 m (8,200 ft).	P	Presence of permanently wet areas adjacent to Griff Creek.
<i>Myurella julacea</i>	Myurella Moss	LTBMU (LSI)	Soil over rocks or within crevices of alpine boulders and rock fields, often within subalpine coniferous forest.	A	Required habitat not present.
<i>Orthotrichum praemorsum</i>	Orthotrichum Moss	LTBMU (LSI)	Shaded, moist habitats of Eastside Sierra Nevada rock outcrops up to 2,500 m (8,200 ft).	A	Required habitat not present.
<i>Orthotrichum shevockii</i>	Shevock's Orthotrichum	LTBMU (LSI)	Dry granitic rock outcrops in Carson Range, Douglas and Carson City counties.	A	Required habitat not present.
<i>Orthotrichum spjutii</i>	Spjut's Bristle Moss	LTBMU (LSI)	Continually misted, shaded granitic rock faces at high elevations of Sonora Pass.	A	Required habitat not present.
<i>Pohlia tundrae</i>	Tundra Pohlia Moss	LTBMU (LSI)	Gravelly, damp soils of alpine boulder and rock fields. Elevation ranges from 2,700 m (8,860 ft) to 3,000 m (9,840 ft).	A	Required habitat and elevation not present.
<i>Sphagnum</i> spp.	Sphagnum Mosses	LTBMU (LSI)	Usually in fens and bogs; sometimes in very wet, nonacidic habitats that remain saturated.	A	Soils too well drained and no fens or bogs present.

Notes:

¹ Status Codes:

CDFA (California Department of Food and Agriculture)

CDFG (California Department of Fish and Game): E – Endangered Species, FP – Fully Protected, and SCS – Special Concern Species.

FWS (US Fish and Wildlife Service): T – Threatened Species, E – Endangered Species, C - Candidate Species, and SC - Species of Concern.

LTBMU (Lake Tahoe Basin Management Unit): MIS - Management Indicator Species, S - Sensitive Species, and LSI – Species of Interest.

TRPA (Tahoe Regional Planning Agency): SI - Special Interest Species.

² Waterfowl: Defined by TRPA as birds of the families Anatidae (ducks), Pelecanidae (pelicans), Ardeidae (herons), Rallidae (rails), Laridae (gulls), Charadriidae (plovers), Scolopacidae (snipes) and Phalaropodidae (cormorants).³ Migratory Birds: As defined by the Migratory Bird Treaty Act 1918 as amended.⁴ Habitat: A = absent; P = Present

Table 3.16-3. Regional Species of Concern Assessment of Presence in the Project Area

Scientific Name	Common Name	Status ¹	Habitat ⁴	Occurrence ⁴	Rationale
MAMMALS					
<i>Ursus americanus</i>	Black Bear	LTBMU (MIS)	P	P	Presence of marginal habitat and species known to occur in the area.
BIRDS					
<i>Anas platyrhynchos</i>	Mallard	TRPA (SI), LTBMU (MIS)	P	P	Presence of limited habitat and species is known to reside at Lake Tahoe.
<i>Haliaeetus leucocephalus</i>	Bald Eagle	FWS (T), TRPA (SI), CDFG (FP)	P	P	Presence of marginal roosting and/or foraging habitat. Species is known to breed and winter at Lake Tahoe.
<i>Pandion haliaeetus</i>	Osprey	TRPA (SI)	P	P	Presence of marginal roosting and foraging habitat. Species is known to breed at Lake Tahoe.
	Waterfowl Species ²	TRPA (SI)	P	P	Presence of habitat. Several waterfowl species breed, winter or migrate through Lake Tahoe and the project area.
	Migratory Birds ³	FWS (SC)	P	P	Presence of various habitats. Utilization of Lake Tahoe and the project area by a variety of breeding, wintering, or migrating species.
FISHES					
<i>Oncorhynchus mykiss</i>	Rainbow Trout	LTBMU (MIS)	P	P	Presence of habitat and species known to reside in Lake Tahoe.
<i>Salvelinus fontinalis</i>	Brook Trout	LTBMU (MIS)	P	P	Presence of habitat and species known to reside in Lake Tahoe.
PLANTS					
<i>Arabis rectissima</i> var. <i>simulans</i>	Washoe Tall Rockcress	LTBMU (LSI)	P	A	None observed during 2001, 2002, 2004 and 2005 field surveys.
<i>Botrychium ascendens</i>	Upswept Moonwort	LTBMU (S), FWS (SC)	P	A	None observed during 2001, 2002 and 2004 field surveys.
<i>Botrychium crenulatum</i>	Scalloped Moonwort	LTBMU (S)	P	A	None observed during 2001, 2002 and 2004 field surveys.

Table 3.16-3. Continued

Scientific Name	Common Name	Status ¹	Habitat ⁴	Occurrence ⁴	Rationale
<i>Botrychium lineare</i>	Slender Moonwort	LTBMU (S)	P	A	None observed during 2001, 2002 and 2004 field surveys.
<i>Botrychium minganense</i>	Mingan Moonwort	LTBMU (S)	P	A	None observed during 2001, 2002 and 2004 field surveys.
<i>Botrychium montanum</i>	Western Goblin	LTBMU (S)	P	A	None observed during 2001, 2002, 2004 and 2005 field surveys.
<i>Epilobium howellii</i>	Subalpine Fireweed	LTBMU (S)	P	A	None observed during 2001, 2002 and 2004 field surveys.
<i>Rorippa subumbellata</i>	Tahoe Yellow Cress	TRPA (SI), LTBMU (S), FWS (C), CDFG (E)	P	A	Three plants observed in 2002 nearby. None observed during 2004 and 2005 field surveys.
<i>Peltigera hydrothyria</i>	Veined Water Lichen	LTBMU (S)	P	A	None observed during 2004 field surveys.
<i>Bruchia bolanderi</i>	Bolander's Candle Moss	LTBMU (S)	P	A	None observed during 2004 field surveys.
<i>Helodium blandowii</i>	Blandow's Helodium Moss	LTBMU (LSI)	P	A	None observed during 2004 field surveys.
<i>Meesia uliginosa</i>	Broad-nerved Hump-moss	LTBMU (S)	P	A	None observed during 2004 field surveys.

Notes:

¹ Status Codes:

CDFG (California Department of Fish and Game): E – Endangered Species, FP – Fully Protected, and CSC – Special Concern Species.

FWS (US Fish and Wildlife Service): T – Threatened Species, E – Endangered Species, C - Candidate Species, and SC - Species of Concern.

LTBMU (Lake Tahoe Basin Management Unit): MIS - Management Indicator Species, S - Sensitive Species, and LSI – Species of Interest.

TRPA (Tahoe Regional Planning Agency): SI - Special Interest Species.

² Waterfowl: Defined by TRPA as birds of the families Anatidae (ducks), Pelecanidae (pelicans), Ardeidae (herons), Rallidae (rails), Laridae (gulls), Charadriidae (plovers), Scolopacidae (snipes) and Phalaropodidae (cormorants).³ Migratory Birds: As defined by the Migratory Bird Treaty Act 1918 as amended.⁴ Habitat and Occurrence: P = Present; A = Absent.

(Table 3.16-2). Suitable habitat for nine of these species and the two species groups occurs in the action area (Table 3.16-3). Of these species, mallard and three other species of waterfowl, 34 migratory bird species, and brook trout were identified in the action area during the 2001–2006 field investigations (Table 3.16-3).

Weedy Plant Species

No established populations of federally listed noxious weeds were identified within the action area. Two state-listed noxious weeds, diffuse knapweed (*Centaurea diffusa*) and scotch broom (*Cytisus scoparius*), were identified in the action area during the 2002 field investigations. Six diffuse knapweed plants were observed on the east side of Secline Street south of SR 28 in the park area. Scotch broom (*Cytisus scoparius*) was observed on the west side of Secline Avenue south of SR 28. Figure 3.16-1 shows the locations of these plant species.

3.16.2 Regulatory Setting/Tahoe Regional Planning Agency Thresholds

Many state and federal laws regulate impacts to wildlife. The USFWS, the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) and CDFG are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under CESA or FESA. Species listed or proposed for listing as threatened or endangered are discussed in the Natural Environment Study found in Appendix Q of this document. All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1600–1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

In addition to state and federal laws regulating impacts to wildlife, there are often local regulations (example: county or city) that need to be considered when developing projects. If work is being done on federal land (Bureau of Land Management [BLM] or USFS, for example), then those agencies' regulations, policies, and Habitat Conservation Plans are followed.

3.16.2.1 Federal

Endangered Species Act

The primary federal law protecting threatened and endangered species is the FESA: *16 U.S.C., Section 1531, et seq.* See also *50 CFR Part 402*. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the FHWA, are required to consult with the USFWS and NOAA Fisheries to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, CESA, California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning

to offset project caused losses of listed species populations and their essential habitats. CDFG is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Consultation with the USFWS is required to analyze and determine potential effects on federally listed threatened, endangered or sensitive vegetation and wildlife species that could result from the implementation of the proposed action. Biological assessments are required under Section 7(c) of the FESA if listed species or critical habitat may be present within the action area. Should this occur, the proposed action is subject to issuance of a permit from a federal agency as defined in Part 404.02. Under Section 7(a)(3) of the FESA every federal agency is required to consult with the USFWS or NOAA Fisheries on a proposed action if the agency determines that its proposed action may affect an endangered or threatened species.

Migratory Bird Treaty Act of 1918, as Amended (16 U.S.C. 703 et seq.)

Based on its conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act of 1918 (MBTA), the USFWS is concerned about potential effects on migratory birds. Under the MBTA, nests (nests with eggs or young) of migratory birds may not be harmed nor may migratory birds be killed.

Wetlands and Other Waters

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the CWA (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The CWA regulates the discharge of dredged or fill material into waters of the

United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the USACE with oversight by the EPA.

The Executive Order for the Protection of Wetlands (Executive Order 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the FHWA, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by CDFG and the RWQCB. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600–1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is

wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of the CWA. Please see the Water Quality section (*Chapter 3.13*) for additional details.

Regional General Permit 16

For projects involving minimal individual and cumulative impacts on waters of the United States within the Basin (which includes Lake Tahoe, its tributaries, and associated wetlands), the USACE has issued Regional General Permit 16 (GP16) under the authority of Section 10 of the Rivers and Harbors Act of 1899 (*33 U.S.C. 403*) and Section 404 of the CWA (*33 U.S.C. 1344*). Activities that may be authorized under GP16 include, but are not limited to, the repair, modification, or replacement of existing piers; construction of new piers; placement of buoys and buoy fields; construction of shoreline revetment; maintenance dredging; construction or maintenance of culvert and drainage facilities; and restoration of stream channels and wetlands as long as the project meets all of the conditions of GP16, including the placement of no more than 0.33 acre of fill or dredge material within waters of the United States, unless the project impacts are associated with wetland or stream habitat restoration.

Project proponents seeking authorization under GP16 must submit a complete application to the USACE providing evidence that the project meets all of the conditions of GP16, including compliance with the NHPA, FESA, Section 401 of the CWA (state water quality objectives), and TRPA. If the project proponent cannot meet the conditions for GP16, an individual permit application would have to be provided.

Plant Species

The USFWS and CDFG share regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the FESA and/or CESA. Please see the Natural Environment Study found in Appendix Q of this document for detailed information regarding threatened and endangered species.

This section of the document discusses all the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at *16 U.S.C. Section 1531*, et seq. See also *50 CFR Part 402*. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Sections 1900–1913, and the CEQA, *PRC, Sections 2100–21177*.

Invasive Species

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” FHWA guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

Execution Order 13112 (February 3, 1999) charges each federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law: (1) identify such actions and (2) subject to the availability of appropriations, and within administration budgetary limits, use relevant programs and authorities to (i) prevent the introduction of invasive species, (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner, (iii) monitor invasive species populations accurately and reliably, (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded, (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species, and (vi) promote public education on invasive species and the means to address them. An *invasive species* is defined as a species that is nonnative (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm to human health (Executive Order 13112).

3.16.2.2 State

California Endangered Species Act

Like the FESA, California has enacted a similar law at the state level, the CESA, California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The CDFG is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Section 2081 Permit

Should it be determined that a State of California threatened or endangered species would be impacted by proposed action activities, compliance with Section 2081 of CESA would be required. A Section 2081 Permit would need to be obtained from the CDFG.

Streambed Alteration Agreement

CDFG also regulates alterations to lakes, rivers and streams under Section 1600 of the Fish and Game Code of California. Projects that would divert, obstruct, or change the natural flow or bed, channel or bank of waters of the state must obtain a Streambed Alteration Agreement from CDFG. Waters of the state include natural lakes, rivers, streams, and engineered systems designed to convey or hold surface water. Griff Creek is considered a water of the state.

Noxious Weeds

The California Food and Agriculture Code includes sections defining noxious weeds, providing for quarantine or eradication of noxious weed infestations, and regulating the movement of noxious weeds and their propagules into and within the state. *Noxious weeds* are defined as “any species of plant which is, or is liable to be detrimental or destructive and difficult to control or eradicate.” The California Department of Food and Agriculture (CDFA) maintains lists of noxious weeds and advises the County Agricultural Commissioners as to the action to take regarding each noxious weed species. The CDFA ranks noxious weeds according to their level of invasiveness and the feasibility of control.

- **List A:** The most invasive and widely spread weed infestations requiring the most control with eradication, quarantine, or other holding action required at the state or county level.
- **List B:** Noxious weeds that are more widespread and therefore more difficult to contain with intensive control or eradication, where feasible, at the county level.

- **List C:** Weeds so widely spread that CDFA only endorses funding for eradication and containment in nurseries and seed lots with control, or eradication, as local conditions warrant, at the county level.

3.16.2.3 Tahoe Regional Planning Agency Thresholds

TRPA has determined environmental threshold carrying capacities for vegetation, wildlife, and fisheries. In addition, thresholds for other categories, such as water quality, set targets for biological resources.

Vegetation Thresholds

There are four vegetation thresholds. The first threshold, a general vegetation standard, seeks to “[i]ncrease plant and structural diversity of forest communities through appropriate management practices as measured by diversity indices of species richness, relative abundance, and pattern.” The second threshold, a standard for uncommon plant communities, seeks to “[p]rovide for the nondegradation of the natural qualities of any plant community that is uncommon to the region or of exceptional scientific, ecological, or scenic values.” The third threshold, a standard for plant species of concern, seeks to “[m]aintain a minimum number of population sites for each of five sensitive plant species.” Four plants listed on the California Native Plant Society’s List 1B (rare, threatened, or endangered in California and elsewhere) occur in the vicinity of the action area: long-petaled lewisia (*Lewisia longipetala*); Tahoe draba (*Draba asterophora* var. *asterophora*); Cup Lake draba (*Draba asterophora* var. *macrocarpa*); and Tahoe water cress (*Rorippa subumbellata*), which is also state-listed as endangered and a federal candidate for listing. The fourth threshold, which is a standard for LSOG ecosystems, seeks to “[a]ttain and maintain a minimum percentage of 55% by area of forested lands within the Tahoe Region in a LSOG condition, and distributed across elevation zones.” Forested lands within TRPA designated urban areas are excluded in the calculation for threshold attainment.

In addition to these thresholds, TRPA has standards regarding tree removal. The TRPA *Regional Plan for the Lake Tahoe Basin, Code of Ordinances* states in paragraph 71.2.A, “Standards for Conservation and Recreation Lands:”

Within lands classified by TRPA as conservation or recreation land use or Stream Environment Zones, any live, dead or dying tree greater than or equal to 30 inches diameter at breast height (dbh) in westside forest types shall not be cut, and any live, dead or dying tree greater than or equal to 24 inches dbh in eastside forest types shall not be cut [except as described in Chapter 71.2.A1-10]. (Tahoe Regional Planning Agency 2004a)

The BSA is located within the eastside forest type and does contain some SEZs within its boundaries.

Paragraph 71.2.B, “Standards for Non-SEZ Urban Lands” states:

Within non-SEZ urban areas: Individual trees larger than 30 inches dbh that are healthy and sound shall be retained as desirable specimen trees having aesthetic and wildlife value, unless 1) all reasonable alternatives are not feasible to retain the tree, including reduction of parking areas or modification of the original design, or 2) paragraphs 71.2A(1), 71.2A(2), 71.2A(3), 71.2A(7), 71.2A(8), 71.2A(9) can be applied. (Tahoe Regional Planning Agency 2004a.)

Wildlife Thresholds

There are two wildlife thresholds. The first threshold, a general standard, seeks to “provide a minimum number of populations sites and disturbance zones for TRPA listed species.” Perching trees and nesting sites shall not be physically disturbed, nor shall the habitat within disturbance zone be manipulated in any manner, unless needed to enhance habitat quality. The second threshold, a management standard for wildlife habitats of special significance, states that “[a] non-degradation standard shall apply to wildlife habitat consisting of deciduous trees, wetlands, and meadows while providing for opportunities to increase the acreage of such riparian associations.”

Fisheries Thresholds

The TRPA Code of Ordinances provides regulation for the protection of fish resources in Chapter 79 (Tahoe Regional Planning Agency 2004a). The Code states that “[n]ew uses, projects, and activities within fish habitat, as identified by TRPA fish habitat maps or a qualified biologist, shall include provisions for the protection or enhancement of the affected habitat.” *Fish habitat* is defined as “a complex set of elements such as spawning and nursery or rearing areas, food supply and escape cover.” Chapter 79 allows for protection for lake and stream fish habitats and may require special conditions of operation to mitigate or avoid significant adverse impacts to habitat or normal fish activities.

TRPA has adopted three threshold standards for fisheries. The first standard has a goal to achieve the equivalent of 5,948 total acres of excellent lake fish habitat. The second standard has a goal of maintaining 75 miles of excellent, 105 miles of good, and 38 miles of marginal stream habitat. The third standard states that a nondegradation standard shall apply to all instream flows.

Soil Conservation Thresholds

TRPA soil conservation thresholds include a standard for maintaining naturally functioning SEZs. This standard seeks to preserve naturally-functioning SEZs in their natural hydrologic condition; restore all disturbed SEZ in undeveloped, unsubdivided lands; restore 25% of SEZ lands identified as disturbed, developed, or subdivided, and obtain a 5% total increase in the area of naturally functioning SEZ lands.

3.16.3 Environmental Consequences (Including Permanent, Temporary, Direct, Indirect)

Impact BIO-1: Disturbance of Urban-Altered Jeffery Pine Forest

Alternative 1

Under Alternative 1 (no-build alternative), the existing conditions would persist and there would be no adverse effects on the existing Jeffrey pine forest. No mitigation measures would be required.

Alternatives 2, 3, and 4

Implementation of Alternatives 2, 3, and 4 would result in tree and understory vegetation removal and incidental damage to trees and tree root systems. These and other effects would directly and indirectly affect the urban-altered Jeffrey pine forest in the action area. These effects would be limited to approximately 64 acres within action elements 1–34 (see Table 3.16-4) and would be associated with actions outside the paved ROWs.

Approximately 63 trees (no LSOGs) would be removed from the action area during construction (Table 3.16-4). Permanent and indirect effects on stability of additional trees (including isolated LSOGs) would result from major lateral tree root disturbance during construction and excavation. Soil disturbance within a radius equal to three times the tree's dbh may affect the tree's stability, with the severity the greatest where the disturbance would be closest to the trunk (Jones pers. comm.). Within the zone of most severe effect, 102 trees would be affected, including 61 LSOGs (Table 3.16-4).

Table 3.16-4. Summary of Impacts on Trees

Element ^a	Trees Removed	LSOGs Removed	Trees Severely Damaged ^b	LSOGs Severely Damaged
1	2	0	2	3
3	3	0	1	9
4	2	0	2	3
6	3	0	1	5
7	0	0	0	1
8	6	0	4	5
9	7	0	2	5
10 ^c	0	0	0	0
14	8	0	1	3
15	3	0	4	1
17	2	0	1	2
18	0	0	0	0
19	3	0	0	0
20 ^c	0	0	0	0
21	1	0	4	1
22	0	0	1	3
23	1	0	0	2
24	0	0	1	0
25	7	0	2	10
26	1	0	2	1
27	5	0	3	0
28 ^c	0	0	0	0
29	1	0	4	1
30	0	0	1	3
31	0	0	0	1
32	4	0	2	0
33	0	0	2	1
34	4	0	1	1
Totals:	63	0	41	61

Notes:

^a Figure 3.15-17 illustrates the locations of each project element within the biological study area. The locations, dbh, and removal status of trees found within each element within the KBCC are found in Appendix Q.

^b *Severely damaged* is soil disturbance within a radius equal to three times the tree's dbh.

^c Non-LSOGs may be located on these potential parking locations. However, the trees would be avoided and no trees would be removed if these locations are chosen.

Removal of these trees and cover vegetation, incidental tree damage, and disturbance of tree roots during construction and excavations will cause both direct and indirect effects on forest community. Tree removal will reduce the natural structural diversity of the area and the associated shelter and forage value the trees provide to wildlife species that use them. Tree and root damage will also likely result in increased susceptibility to disease and/or reduction of water and nutrient uptake that would potentially affect the long-term viability of the trees. Removal of trees and understory vegetation could also result in increased surface runoff, altered local hydrology, erosion, subsequent sediment loading in Griff Creek, and an increase in airborne dust. Vegetation removal may also promote the invasion and spread of weedy species into the community.

Although this plant community within the action area has been fragmented and urbanized, the further reduction of the plant and structural diversity of this Jeffrey pine forest would be contrary to the vegetation thresholds established by TRPA. Therefore, this would result in an adverse effect. Implementation of Mitigation Measures BIO-1 through BIO-4 reduces the severity of this effect.

Impact BIO-2: Loss or Disturbance of Wetlands and Streams

Alternative 1

Under Alternative 1 (no-build alternative), the existing conditions would persist and there would be no adverse effects on wetlands or streams. No mitigation measures would be required.

Alternatives 2, 3, and 4

SR 28 improvements are proposed adjacent to Griff Creek. However, these improvements would occur in existing, paved highway ROWs and would not affect wetlands or streams under any proposed alternative.

Roadside drainages are located where they would be impacted by proposed on-street parking on Deer Street, Trout Avenue, near the intersection of Trout Avenue and Coon

Street, Salmon Avenue, and Chipmunk Street, and where ditch lining and revegetation is proposed on Bear Street. Two proposed parking elements are also located adjacent to rock-lined drainage ditches that support some herbaceous plant species. These project elements in total contain approximately 0.088 hectare (0.217 acre) of drainage ditches.

Permanent direct and/or temporary direct effects on these ditches would occur as a result of alterations to existing hydrology, removal of vegetation, root zone disturbance of shrubs and trees in or adjacent to these ditches, and other disturbances associated with the installation of ditch linings and revegetation of existing roadside ditches and swales. Indirect effects due to vegetation removal would include increased sediment loading during runoff events, airborne dust, and increased potential for the establishment of weedy plant species.

Alternatives 2, 3, and 4 would have an adverse effect on the riparian vegetation in the action area. Implementation of Mitigation Measures BIO-1 through BIO-4 would reduce the severity of this effect.

Impact BIO-3: Impacts on Regional Wildlife Species of Concern

Alternative 1

Under Alternative 1 (no-build alternative), the existing conditions would persist and there would be no adverse effects on regional wildlife species of concern. No mitigation measures would be required.

Alternatives 2, 3, and 4

Bald Eagles and Ospreys

No bald eagles or ospreys were observed during the surveys, nor was there suitable foraging, nesting, or wintering habitat for these species. However, the tallest trees in the Jeffery pine community (mostly LSOGs) could potentially provide occasional-use roosting habitat for these species during quiet periods (daily or seasonal). (Spaulding and Gordon pers. comms.) However, because no eagles or ospreys have been observed

roosting in the action area and existing high levels of urban activity in the Kings Beach area will likely deter/preclude eagle and/or osprey from roosting in the vicinity, it likely the project will not affect either species. Further, *Section 3.9, Noise*, indicates that implementation of the proposed action is not anticipated to result in any long-term noise level increases from project operations.

Implementation of Mitigation Measure BIO-2 and construction noise mitigation measures (*Section 3.9, Noise*) would reduce the severity of any potential noise or disturbance effects.

Migratory Birds

Permanent and direct effects on migratory bird habitat would occur from proposed on- and off-street project elements that result in the removal of vegetation (including trees). Migratory bird habitat within the action area consists of approximately 775.4 acres of Jeffrey pine forest and 11 acres of riparian woodland/scrub habitat. On- and off-street parking elements could affect approximately 63.98 acres of migratory bird habitat.

Direct, permanent, and temporary effects on area birds would occur as a result disturbance from project construction activities that result in the abandonment of a nest and/or death of the adults and/or their young. Direct and temporary effects could also result from construction activities and noise disturbance that temporarily displace foraging adults.

Implementation of Mitigation Measure BIO-2 and BIO-4 and construction noise mitigation measures (*Section 3.9, Noise*) would reduce the severity of these effects.

Rainbow and Brook Trout

Rainbow and brook trout habitat within the BSA is limited to Griff Creek. Noise and disturbance from SR 28 construction activities could displace trout from the lower portion of Griff Creek adjacent to the roadway. Effects on the trout from each alternative would be the same. Direct effects on fish and fish habitat as a result of on- and off-street project elements are not expected to occur because no habitat occurs within those

portions of the action area. However, some effects from increased siltation could occur from erosion of areas where vegetation has been removed and/or the hydrology has been altered. Any improvement to erosion control and water quality as a result of SR 28 or on- and off-street project elements would result in a positive, long-term effect on fish and fish habitat.

Implementation of Mitigation Measure BIO-2 and standard erosion control BMPs would reduce the severity of these effects.

Impact BIO-4: Spread of Weedy Plant Species

Alternative 1

Under Alternative 1 (no-build alternative), the existing conditions would persist and there would be no adverse effects associated with the spread of weedy plant species. No mitigation measures would be required.

Alternatives 2, 3, and 4

Because the action area is primarily urban, the proposed action would not substantially add to the level of disturbance already present in the area and would not substantially add to the area available for colonization by weedy plant species. However, roads, highways, and related construction projects are some of the principal dispersal vectors for weedy plant species. The introduction and spread of weedy plant species could degrade natural plant communities by displacing native plant species that provide shelter and forage for wildlife species. Therefore, the proposed action could result in the spread of weedy or noxious plant species into the action area, which could result in an adverse effect.

However, it should be noted that none of the species on the California list of noxious weeds is currently used by Caltrans for erosion control or landscaping in Placer County.

Implementation of Mitigation Measures BIO-3 and BIO-4 would reduce the severity of this effect.

3.16.4 Mitigation, Avoidance, Minimization, and Compensation Measures

The following mitigation measures will be implemented to avoid, minimize, and compensate for potential direct, indirect, and cumulative action impacts.

Mitigation Measure BIO-1: Establish Exclusion Zones

The contractor will install orange construction barrier fencing to demarcate environmentally sensitive areas (e.g., wetlands, riparian vegetation, streams, tree root zones). The construction specifications will require that a qualified biologist identify sensitive biological habitats on-site and identify areas to avoid during construction. Before construction, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the barrier fencing and will place stakes around the sensitive resource sites to indicate these locations. The protected areas will be designated as environmentally sensitive areas and clearly identified on the construction plans and specifications. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period.

Mitigation Measure BIO-2: Seasonal Restrictions on Construction

The construction specifications entered into by TRPA and the contractor will minimize construction impacts on wetlands and streams. Ground-disturbing activities will only be conducted when soils are sufficiently dry to avoid or minimize compaction and sufficiently stable to avoid and/or minimize erosion. Soils are considered sufficiently dry when they are not inundated or saturated. Construction activities that could disturb nesting migratory birds and/or spawning trout will be conducted outside of the nesting and spawning season for these species. Appropriate noise and vibration mitigation measures (*Section 3.9, Noise*) will be implemented to minimize disturbance impacts on these species.

Mitigation Measure BIO-3: Avoid the Introduction of New Noxious Weeds

The contractor will be responsible for avoiding the introduction of new noxious weeds in the action area. Accordingly, the following measures will be implemented during construction.

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations.
- Clean construction equipment at designated wash stations before entering the construction area.
- Conduct a follow-up inventory of the construction area to verify that construction activities have not resulted in the introduction of new noxious weed infestations. If new noxious weed infestations are located during the follow-up inventory, the appropriate resource agency will be contacted to determine the appropriate species-specific treatment methods.
- In compliance with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from the FHWA, the landscaping and erosion control included in the project will not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

Mitigation Measure BIO-4: Revegetate Disturbed Areas

The contractor will revegetate all temporarily disturbed areas of natural vegetation, including wetlands, riparian habitat, and trees, according to the standards provided in the TRPA *Code of Ordinances* (Section IX, Chapter 77). Chapter 77 provides standards for revegetation following activities that disturb vegetation and soils. Trees that die or fall over as a result of root damage will be

compensated for by replanting new trees at a ratio not less than 1:1 (inches dbh of trees lost: inches dbh of trees planted).

3.16.5 Compliance with Tahoe Regional Planning Agency Code

TRPA Code Section VIII (Grading and Construction Provision) and Section IX (Resource Management Provisions) provide for the protection of biological resources of the Lake Tahoe region, including vegetation, wildlife, wetlands, and streams. Activities that remove trees and vegetation or that reduce the diversity of wildlife habitat do not comply with the TRPA Code except as specifically provided in the code. The proposed action would disturb urban-altered Jeffrey pine habitat by removing vegetation and damaging tree roots; disturbing wetlands, streams, and associated riparian vegetation; and potentially introducing weedy plant species. Therefore, the proposed action would not comply with the TRPA Code unless management techniques to protect, enhance, and restore trees and vegetation, particularly in SEZs, are carried out. Implementation of Mitigation Measures BIO-1 through BIO-4 would bring the proposed action into compliance with the TRPA Code.